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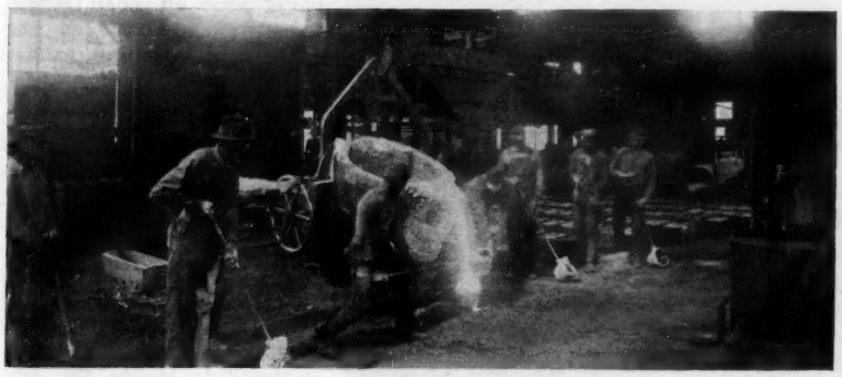
Foundry Is Expanded To Improve Facilities and Efficiency

Completion of Recent Addition Is Most Elaborate of Four Phases of Program Extending Over 10 Years—Railroad Equipment Was Nucleus

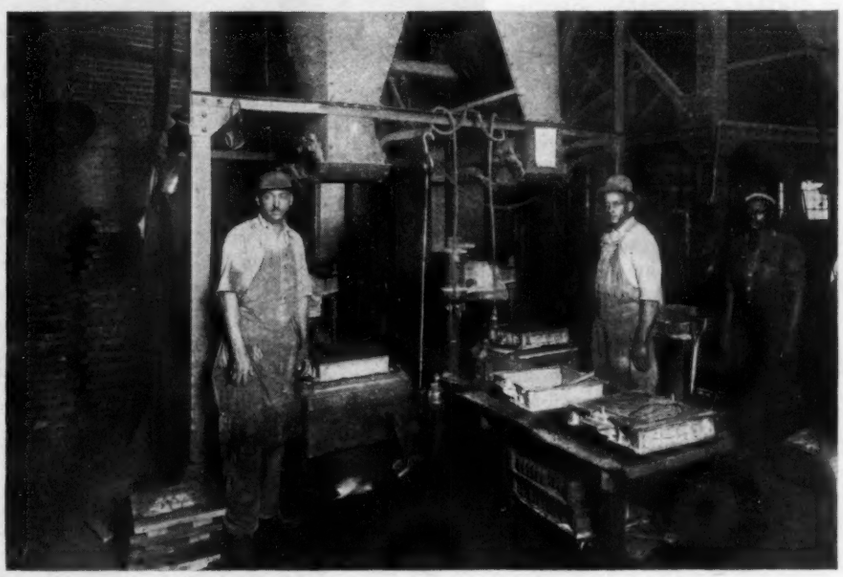
By Pat Dwyer



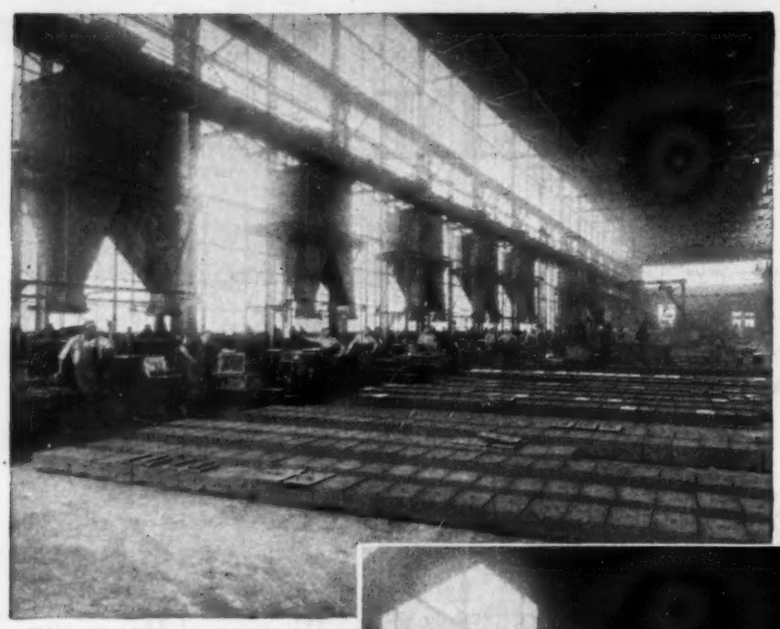
COMPLETION of an extensive addition to the plant of the Industrial Steel Casting Co., Toledo, O., is bringing casting capacity up to 500 tons a month and is the most elaborate of four phases of an extension program through which the company has passed during the 10 years of its existence. Another change, already in contemplation, will carry the main foundry building for a considerable distance and the additional space over which the structure will spread will be utilized principally as a cleaning and shipping room.

About 10 years ago the casting requirements of a prominent Toledo railroad equipment manufacturer assumed such proportion that the management was led to consider several plans for insuring a prompt and ample supply of small steel castings with which to meet its somewhat exacting specifications.

The result of the deliberations was the formation of the Industrial Steel Casting Co., which took over and reopened a small electric



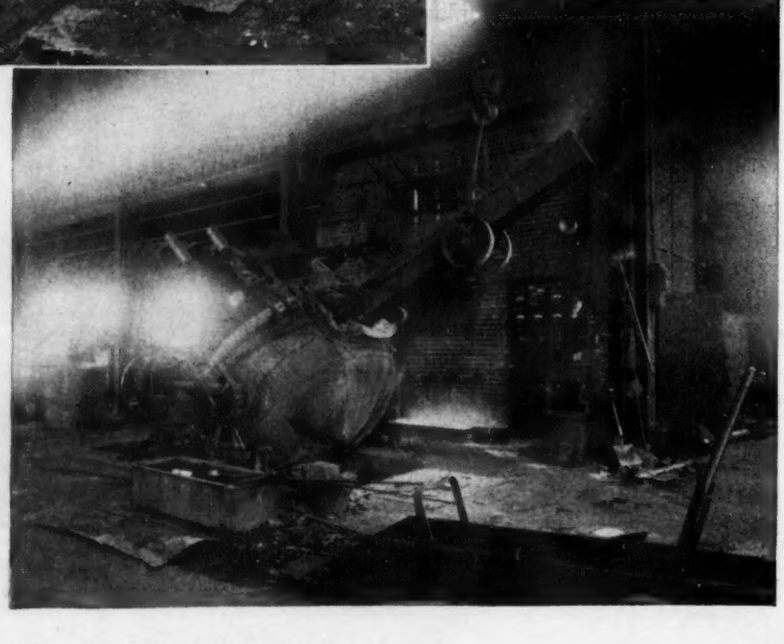
(Above)—Once started the stream flows continuously until the ladle is emptied. (Below)—Typical installation for small repetition castings



(Above) — Machines located under sand hoppers make small green sand molds

steel foundry in the east end of the city. A little new equipment was installed, a staff was organized and operations were started on a modest scale. With the railroad equipment work as a nucleus, the scope of activities was extended gradually into many other lines. This extension has been kept up steadily until at present the tonnage of miscellaneous castings turned out, exceeds the tonnage of railroad equipment castings approximately 3 to 1. Increased business entailed the erection of additions to the building and the installation of further equipment. Necessity of paying for these improvements suggested the advisability of taking on new accounts and the result has been an almost constant building program and a frequent realignment of the various departments and pieces of equipment. Readjustment of the molding floors was made recently and to all appearances the facilities of the plant are ample to cope with present demand and anticipated logical increase for a considerable period in the future. Present plans include the early extension of the main building through and beyond the old building. This extension is to serve as a cleaning room where the castings can be carried in a straight line from the shakeout floors. The present cleaning room, still broken up with partitions, will be adapted to other purposes. The new building 107 x 370 feet, of brick, glass and steel construction occupies a corner location and is handsomely finished in gray stone on the two street sides. A 3-story building adjoins the foundry on the east, or Millard street side, and houses the office, the pattern shop and pattern storage and the compressor and power station. The pattern shop is located on the ground floor, while the patterns are stored on the second and third floors served by a 10 x 10-foot automatic electric elevator made by the Haughton Elevator Co. This elevator is equipped with a safety device which prevents it from starting unless the gate is closed properly. The safety first motive is exemplified in the pattern shop where all the tools are driven by individual motors and where the driving gear is enclosed in wire guards. Approximately 6500 patterns are stored in this fireproof building which has been fitted with steel racks from floor to ceiling, numbered and indexed in a manner which greatly simplifies the work of marking entries and exits of the patterns. Many patterns particularly those which are large or unwieldy are handled direct by the crane to and from a platform from the second floor of the pattern storage which extends into the foundry proper. One section of the pattern storage space is set apart for the reception of metal pattern plates used on small repetition work. Acting on the assumption that the comfort and convenience of the employes is a factor rivaling in importance the character and composition of the materials and equipment, the roof of the new building with a glass monitor extending the entire

(Left)—Quarters where sand is collected and prepared. (Below)—Long steel pans are employed to charge the furnace



length, has been placed at a height to insure ample light and an entire absence of smoke and steam from the atmosphere. Change from the old to the new style in foundry building construction is illustrated graphically by the fact that the crane in one bay of the new section passes, when necessary, above the cranes traveling at right angles in the old section of the foundry. Eventually, as stated elsewhere, the upper runway will be extended to serve the cleaning room that at present is in contemplation. A steam heating system is in process of installation and will be ready in ample time for the coming winter. The only occasion on which it really is needed is over the week-ends. During the remainder of the week with a heat of steel poured approximately every hour, the temperature of the sand and air in the foundry is passable.

Electrically cooled drinking fountains painted white are located at strategic points throughout the plant. Air service pipes also are painted white, but that color is prompted by economic rather than hygenic or aesthetic motives. Compressed air carries a certain amount of oil and water in suspension and this material is deposited as a residue where air leaks through a pipe. The discoloration readily is detected on a white surface. The same general policy dictated a smooth white plaster finish on the walls of the various offices and corridors in the main office building. Discolorations may be removed easily, and discolorations of the walls are among the first and most inevitable by-products of a system where shop and office work in harmony.

The new building is divided by a row of steel columns into two main bays of equal width, 53 feet 6 inches. One bay is served by a 15-ton crane with 5-ton auxiliary hoist made by the Cleveland Crane & Engineering Co., Wickliffe, O. The other bay is spanned by a 10-ton crane made by the Harnischfeger Corp., Milwaukee. One bay is given over entirely to the production of small castings in green sand molds made in snap flasks on a battery of jolt and squeeze molding machines erected in a row close to the west wall of the building. Four of these machine were made by Wm. H. Nicholls Co., Richmond Hill, Long Island, N. Y., four came from the Milwaukee Foundry Equipment Co., Milwaukee, and the remaining ten from the Johnson & Jennings Co., Cleveland. They are all set up in pairs with the drag pattern plate on one and the cope pattern plate on the other. Usually two men work a pair of machines, but in some instances a crew of four men is employed with a consequent increase in the daily production. Each pair of molding machines is located directly beneath a breeches sand hopper with two spouts and the molder fills his flask with sand by the simple expedient of pulling an overhead rod which actuates a gate in the bottom of the spout and releases sufficient sand to fill the flask. The hoppers in turn are loaded from a conveyor belt which extends the complete length of the new building at one side. A transverse belt extends across the end wall of the building and carries sand from the long belt to hoppers which supply three pairs of large jolt rollover molding machines installed by the Herman Pneumatic Machine Co., Pittsburgh.

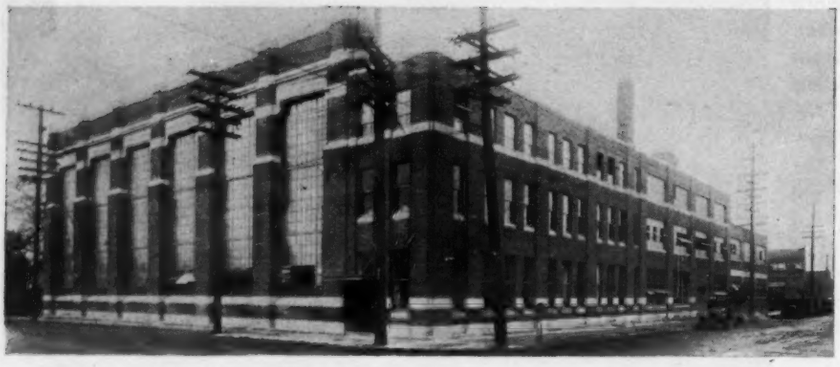
(Above)—This crew puts up 600 molds a day

Lower part of the sand preparation system by which all material is treated mechanically, thus converting it into a facing sand

Molds made on these large machines are poured in the second main bay of the new foundry. At present they are lifted by the crane, but plans are well forward for placing them on roller conveyors. In addition to the molds made on the machines, a considerable number are made on the floor where the sand is rammed with pneumatic rammers. All these molds are green sand and the sand for the miscellaneous flasks is brought by crane and grab bucket from where it is discharged over the end of the conveyor belt.

Instead of applying a small quantity of specially treated sand to the face of the pattern and then filling the flask with run-of-mine material from a miscellaneous sand pile, the practice in this foundry is to treat all the sand mechanically and thus convert it into a facing sand. Equipment for preparing and distributing the sand was designed and built by National Engineering Co., Chicago.

After the molds are poured a spe-



Offices, pattern shop and pattern storage occupy the right section of this building

cial shakeout gang dumps them into a steel pan lifted from place to place with the crane. The castings, bands and bottom boards are removed. The castings are loaded into steel buckets while the bands and bottom boards are stacked at a point convenient for the molders. Buckets containing the castings are taken to the cleaning room in the old section of the building. Pans containing the sand are taken to a point near the junction of the old and new foundry where the sand is dumped into a rotary crusher and thence through a grating in the floor. An elevator takes it aloft, screens it and deposits it in a large steel storage hopper. From the hopper it is fed in batches to an 8-foot diameter muller where a dry binder is incorporated in the ratio of 1 to 20. Water is added according to the discretion of the attendant in charge from a perforated pipe which encircles the mixing pan on the inside near the upper edge.

Close control is maintained over the moisture content, bond and permeability of the sand. Moisture content and bond are held to a minimum with a consequent increase in the natural permeability. Every night a definite amount of accumulated dried sand is passed through an exhaust system made by the W. W. Sly Mfg. Co., Cleveland. This treatment removes all dust and fines. The purified sand is returned to the circulating system on the following day and assists in maintaining the permeability at a predetermined standard.

Sand Conveyed to Hopper

Prepared green sand is discharged through a side gate in the mulling pan into an elevator which carries it aloft to a storage hopper which in turn feeds it on to the main conveyor belt, reference to which has been made. Castings are made in dry sand molds in a section of the old foundry. The facing sand is prepared from a mixture of new silica sand, silica flour and clay in the proportion of 10, 1 and 1 respectively in a grinding pan made by a one time well-known manufacturer of clay working machinery. Core sand is prepared in a third roller and pan-type mixer located in the coreroom. Usually the cores are comparatively small and are made from new silica sand bonded with oil or with a dry binder. The larger cores are faced with a dry sand facing mixture similar to that employed in the dry sand molds. The interior is filled with old molding sand which serves the double purpose of reducing the cost of the sand and of facilitating contraction of the casting.

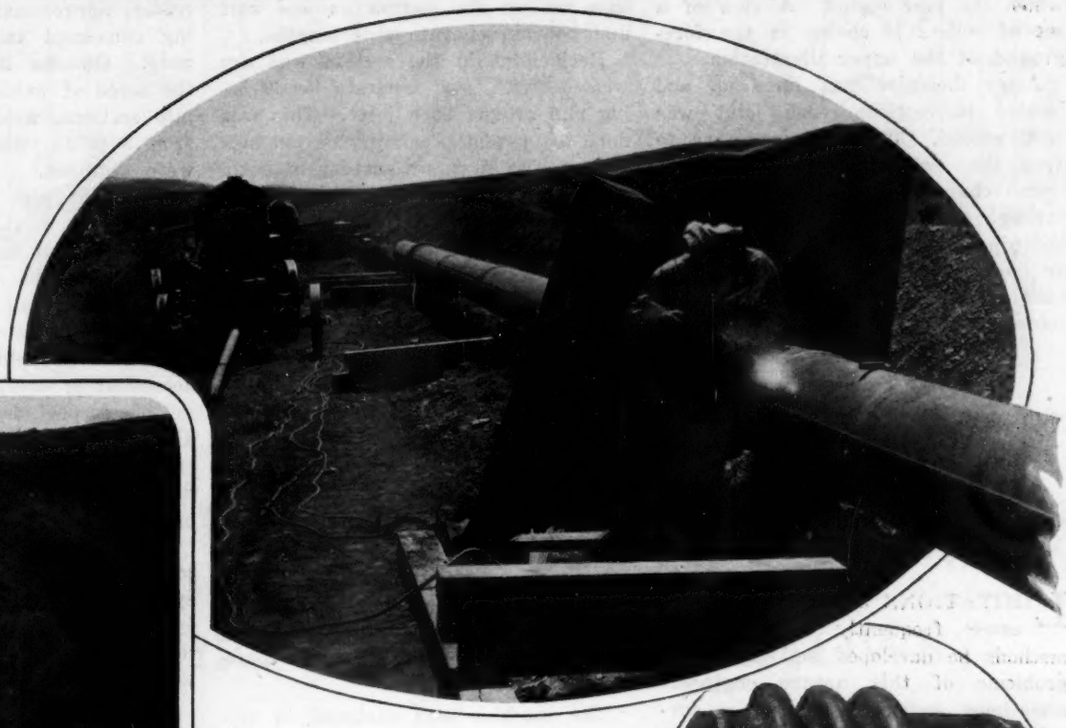
Molds are dried in one and cores are dried in three ovens made by the Foundry Equipment Co., Cleveland. Two of the core ovens and the mold oven constitute a battery that is oil fired. The burners are located at the end opposite the doors and the gases of combustion enter the oven through a great number of openings in the roof of a firing tunnel located below the oven floor level. Molds are dried on a car, while the cores are loaded on racks transported on lift trucks.

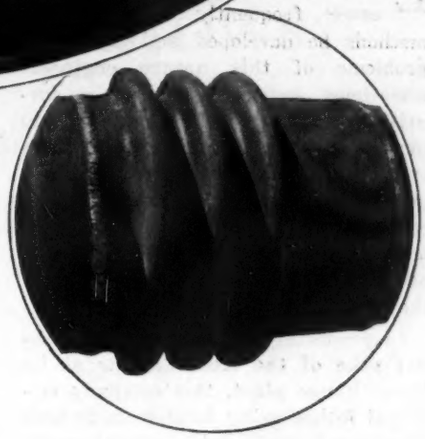
In line with its general policy of progress the company installed an electrically-heated core oven when a new unit was required. This oven is of the drawer type with four drawers or shelves 42 x 72 inches and presents many interesting features in contrast to ovens that were considered highly efficient by a former generation. The drawers are carried at the front end by a patented double suspension ball bearing trolley which runs on cantilevered channel tracks. The rear ends of the drawers are carried by a frictionless differential roller arrangement which it is claimed eliminates the necessity of any kind of lubrication inside the oven. Machined bearings, rails, trolleys and the positive engagement of the drawer front at two points eliminate vibration with its consequent danger of breakage or distortion. All ovens are controlled by pyrometers.

The same policy prompted the installation of an electrically-heated annealing oven when the output of the foundry exceeded the capacity of the oil-fired unit which had served with eminent satisfaction for several years. The new oven is made up of one main chamber which can be divided into two by a vertical movable bung, and a side chamber in which the castings are preheated by escaping heat from the second of the two divisions in the main chamber. In this manner practically all the heat generated by the elements attached to the walls is utilized so long as the oven is kept in operation. Loaded cars are moved through the oven and back to the

(*Concluded on Page* 332)

Castings are preheated in one, held to full heat in the second and cooled in a third chamber of the furnace





WELDING sections of the pipe on windy days necessitated the use of a tarpaulin for a windbreak. The sections were placed on rollers as shown to facilitate turning during welding. The completed line was carried up grades as steep as 60 per cent. Expansion joints, such as shown at the right, were installed to equalize the effects of temperature changes.

Long Western Pipe Line

Completely ARC WELDED

Rugged Country Is Traversed by 18-inch Gas Main with Hand Welded Assembly

GAS soon will flow through the new arc welded line of the Uinta Pipe Line Co., from the junction of gathering lines, which is southeast of Rock Springs, Wyo., to Ogden and Salt Lake City, Utah. The total length of the line, when completed will be 277 miles. Of the total mileage, 200 miles is of 18-inch pipe, the balance being of 16-inch pipe, consisting of a 42-mile branch to Ogden and a 35-mile branch to Salt Lake City.

The pipe used in this gas carrier is of arc-welded manufacture, produced in 30-foot lengths, having bell and spigot with welding dam ends. Each length weighs 1600 pounds. Due to the ruggedness of the country and the steep grades encountered, some of the pipe had to be snaked into position by tractor, after having been delivered as near location as possible by truck. Some idea of the nature of the country traversed by this line may be gained from the accompanying illustration, showing a completed portion of the line on a 60 per cent grade.

The customary practice of lining up a number of lengths of pipe to form a section was followed in the construction of this line. The number of pipe lengths in each section varies, depending upon the contour of the ground. In lining up a section, the spigot ends of the pipe lengths were inserted into the bell ends and the entire section, thus formed, leveled by shoring or blocking up with timbers. One innovation which facilitated turning of sections during welding operations was introduced on this line. A set of four steel rollers consisting of two pair mounted on a steel channel base was placed on the top shoring timber on

which the pipe rested. A view of a set of rollers is shown in the foreground of the upper illustration.

After the pipe was lined up and leveled in sections, each joint was tack welded. This was necessary to keep the section intact, due to extreme changes in temperature which through contraction and expansion of the pipe caused it to open the joints or buckle, as the case may be. By tack welding, the pipe lengths are joined so that contraction and expansion act on the section as one unit and not as separate pipe lengths.

Each joint in the section was arc welded twice, two separate beads being run around each joint. This was done to prevent possibility of pin hole leaks. The first, or burning-in bead, was arc welded with 3/16-inch electrodes. Approximately ¾ pounds of electrode metal was used to weld the burning-in bead in the 18-inch joints on this line. The second, or finish bead was arc welded with ¼-inch electrodes, approximately 1¾ pounds being consumed in making the finish weld. On the firing line which is the scene of welding the pipe lengths into sections, welding speeds ranging from 8 to 12 joints per man per day were obtained.

After the pipe was welded into a section, the section then was placed over the open trench on skids and welded into the line. This welding is known as bell hole welding. Being unable to turn the line, the operator must weld around the pipe, necessitating overhead welding. Only in this respect does bell hole welding differ from firing line welding. The speed of welding bell hole joints of this line varied from six to eight joints per operator per day.

To take care of the expansion and contraction of the finished line, caused by temperature changes, a special type expansion joint of all-steel construction was welded into the line at intervals.

The major portion of this line is being arc welded by the owners, the Uinta Pipe Line Co., using ten welders, manufactured by Lincoln Electric Co., Cleveland. They are of the gas engine-driven type, 300-ampere capacity with a current range of 75 to 400 amperes, and operating at a speed of 1500 revolutions per minute. The engine is of the six-cylinder type, directly connected to the generator by a flexible coupling and both mounted on a structural steel channel base. The welders are mounted on wagons and are moved along the line by teams.

This pipe line is the first of 18-inch size to be arc welded. The success experienced with the use of arc welding in the construction of this line points to a possible extensive use of electric arc welded construction on future gas lines.

18 Machine Tools Are Eliminated by the Design of a Single Unit

LIMITATIONS of production processes frequently demand new methods be developed and in solving problems of this nature engineers sometimes secure results of a surprising nature. In finding ways to increase output, manufacturing plants often achieve substantial economies in mechanical power, manpower and cost. A striking example of what can be accomplished in this direction is afforded in a recent development of the Ford Motor Co., Detroit.

In producing the ball on the radius rod yoke of the Model A car at its River Rouge plant, this company employed lathes using form tools to both rough out and finish these parts. Under this method, 50 barrels of rejected parts accumulated because of failure to conform to the required limits. To eliminate this waste, the company's engineers worked out a process and designed a special machine based on the principle of finishing a round part to size by rolling pressure. The new machine now is in successful operation in the rear axle shaft department in the rolling mill. Besides turning out a job that is finished to within 0.001 or 0.002 inch, the machine is effecting an important saving in costs and in elimination of scrap.

Capacity Increased Greatly

Previously 18 machines comprised the equipment to provide a capacity of 9000 a day. Approximately 30 an hour were being finished on the forming tool. The roughing now can be done, it is estimated, by four multispindle machines and about 600 an hour can be finished on the new machine.

The labor saving is considerable, since 12 men on each of the three shifts can be transferred to other work. There is also the saving in power consumption of one machine instead of 18, and the release of space to other uses.

The machine was designed in the Ford shop and consists of two principal parts, round forgings resembling deep dish pans that face each other somewhat like old-time millstones. The lower one revolves and the top one is stationary, being supported in position from a cast-iron plate that in turn is supported on four legs.

Rolling Die Is Used

The bottom forging is a rolling die that revolves on its axis two times around in finishing a single ball. The rough ball starts on its trip around the circumference when it is inserted in an opening that is large enough to take care of any ball of the radius rod yoke, regardless of difference in oversize. The groove or channel gradually narrows down to the proper size for the finished ball. After it has rolled about one-half of the distance around the die, it then undergoes burnishing and sizing and emerges, at completion of the cycle, a smoothly polished and finished ball. As it leaves the groove it is hot from the friction of the passage.

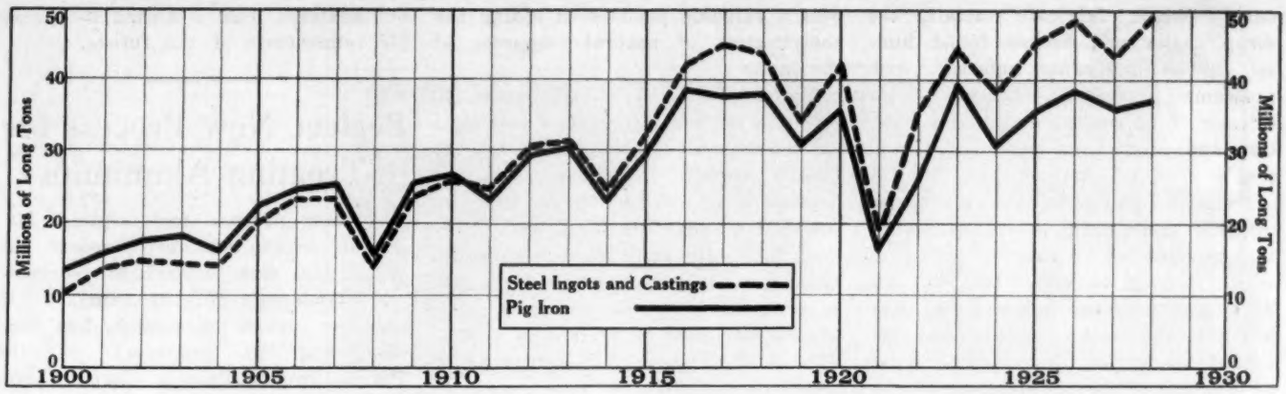
All of the scrap constituting rejected parts has been saved and now can be refinished to limits, while all further rejections on failure to conform to limits have been eliminated, since the machine automatically finishes to size.

Application of same principle to other Model A parts, such as the front spring perch, has been undertaken. It is believed that several such parts can be finished in the same way at considerable reduction in cost.

Founders Meet on Boat

Ohio Foundries Association Inc., Cleveland, is planning an interesting program for its annual meeting. The association expects to make a boat trip on the Ohio river, from Cincinnati to Ashland, Ky., and return. Special plant visitation features will be provided at Ashland. According to present plans the trip will be made shortly after Sept. 15. Technical sessions will be held on board the boat while enroute to Ashland and return.

International rail cartel has decided to continue European rail prices unchanged. There has been no change in these prices for six months.



Due to use of scrap steel, ingot production since 1911 has far exceeded that of pig iron

Scrap Industry Gains New Dignity as Economic Importance Grows

Standards Being Set Up To Facilitate Trading—New Conditions Bring Problems—Tremendous Tonnage Now Being Handled

By George H. Manlove

Associate Editor, Iron Trade Review

EMERGING from a state of business chaos at the beginning of the century the iron and steel scrap industry has grown into a position its leaders never dreamed.

In this period progressive members of the industry have sensed the need for better organization and closer cooperation of those engaged in gathering and marketing the vast tonnage if material moving from its many sources to the consumer. Many attempts at organization have been made on more or less broad scale, and while many have failed to function and have disappeared, the result of each effort has been to teach a lesson and the aggregate effect has been to bring a considerable degree of order.

Perhaps the beginning of the present period of growth started at sometime close to 1911. Previous to that time output of pig iron in this country had exceeded production of steel ingots and castings. Figures for 1911 show the latter passing the former and never since that year has the tonnage of ingots and castings been less than that of pig iron. The spread has been widened steadily and promises to increase as years go on.

Necessarily excess of ingots over pig iron can be achieved only by use of iron and steel scrap. In the period since 1911 steelmaking practice has changed materially in relation to the use of scrap. Larger and ever larger proportions have been used in the open hearth, while electric furnaces use it exclusively. In certain sections, remote from pig iron production, steel is made from scrap almost exclusively. Ideas as to its metallurgical value have changed steadily.

Scrap Content Is Increasing

Steelmaking has not been the only branch of the industry to broaden its use of iron and steel scrap. The foundry industry, once averse to using anything but pig iron for its product, now uses 50 to 60 per cent scrap in its mixture, even for automotive castings and radiator work. Both these products require iron of fine quality and close analysis and this seems easiest obtained with a scrap of known constituents.

The accompanying chart shows graphically the change in relative production of pig iron and steel ingots and castings. Similar presentation of the situation in gray iron and malleable castings can not be made since statistics are not complete. But general knowledge of conditions indicates the increased use of scrap is as great in castings as it is in steel ingots.

Reference to the chart shows that the war years taught the use of larger proportions of scrap in steelmaking, since it was more readily available than pig iron and needed no preparation. Since the war period the practice has been continued and in most recent years the spread is becoming even wider.

Suitability of scrap to the production of steel is proven by the price range of heavy melting steel and basic pig iron, which compete directly for favor as a raw material. Usually basic iron is $1 to $2 higher than heavy melting steel. Yet at times the latter sells for more than the former. This has happened half a dozen times in the past few years and during the first four months of 1929 heavy melting steel at Pittsburgh sold above basic pig iron, the greatest spread being $1.55 per ton.

With this insistent demand for larger tonnages of iron and steel scrap on the part of consumers and increasing production by the branches of in-

dustry which fabricate metals, the scrap dealer and broker found himself in an increasing industry, with problems presenting themselves for solution if he could maintain his position and grow with business in general.

Some recognition of the importance of scrap came early in the war when the government regulated prices at which it could be sold. This was the first time the scrap industry had been brought above the horizon and the period when the term "junk" began to fade out of the picture.

With industry becoming closer knit it became evident that terms of common understanding must be devised to standardize the industry. Buyer and seller must speak a common language and a term must mean always the same thing or dealing would be too complicated. Accordingly a standard classification of iron and steel scrap was adopted by producers, distributors and consumers after conferences in 1926 and 1927, becoming effective in 1928. This did much to clear the situation and form a stable basis for the trade.

Within the present year, through efforts of the recently-organized Institute of Scrap Iron and Steel Inc., working with the federal trade commission, a code of trade practices was adopted, to eliminate evils that hampered progress of the industry.

Organization of the new institute is aimed to put the industry on a better basis, for the good of all factors involved in the industry. It has 12 chapters in areas where most scrap is produced and consumed and it has a basis in the standard classification and code which gives definite lines along which work can be done.

Utilization Is Important

Iron and steel producers realize that without utilization of waste metals present tonnages of steel could be produced only at much greater effort than at present. If every ton of scrap now melted were replaced by a ton of pig iron it would require two tons of ore to be mined and transported and a ton of coke to be produced and transported, in addition to other materials going into the pig iron. This would require an army of workers and many more blast furnaces and would hasten depletion of iron ore and coal that much more rapidly.

Apparently collection and marketing of scrap is better done by an intermediary than by direct dealing. He eliminates necessity for each producer and consumer to maintain an organization to sell or to purchase the material. Thus the scrap industry occupies a valuable position in aiding the conservation of natural resources of the land.

Many efforts have been made to estimate the tonnage of iron and steel scrap consumed each year in the United States. Inasmuch as this is dependent on production of steel no constant tonnage can be figured. However, with mills at or close to capacity, as during the present year, it is safe to say that iron and steel scrap consumed will total 30,000,000 to 35,000,000 tons. Figures for first half of 1929 show 7,329,158 tons more of ingots produced than of pig iron, giving a spread of 14,658,316 for the entire year. This does not represent more than half the tonnage of scrap consumed, however, for it does not include foundry and miscellaneous channels which absorb other millions of tons.

Much Scrap Exported

Periods of scarcity are met in this branch of industry and while larger use of steel naturally increases production of scrap, there is a lag which sometimes brings a temporary famine. Whether supply always will approximate demand is a question of interest to the industry. Europe does not produce sufficient for its needs and is an importer. The United States exports considerable tonnage to Europe and to Japan. This is increasing each year. In 1925 scrap exports were 82,000 tons and in 1928 over 500,000 tons. This tonnage is a small percentage of the total moved in domestic trade but it may need reckoning within years to come.

With the enlarged use of scrap has come a closer differentiation in grades which has increased the work of dealers in classifying more closely than in the past. Following the adoption of the standard classification, imposing a burden on producer and dealer to furnish material true to the description, consumers have been able to fill their needs more closely. Two main grades of heavy melting steel now are universally recognized and melters insist on close observance of the specifications. Entrance of alloy steels into automotive and other branches of manufacture has given rise to a new set of problems which have not yet been solved. These steels, themselves of greater value than ordinary grades, are undesirable in mixtures and must be kept out of scrap for general use. As their use increases and production of scrap from these sources gives sufficient tonnages to make it worth while specialization may develop, dealers making a specialty of sorting and selling the various analyses. This is among the possible refinements of the future.

Perfect New Process for Treating Aluminum

A new process for treating aluminum which not only hardens the metal but also is said to eliminate the tendency of the surface to smudge, tarnish or scratch, has been discovered by engineers of the Perma-Chrome Process Corp., Cleveland. Although details of the process have not been made public it consists generally in submersion of the parts to be treated in some sort of hardening medium. Tests made on aluminum parts so treated show an increase of scleroscope hardness and density after treatment of over 100 per cent. Ability to resist effects of salt water, acids and other corrosive agencies is imparted to the metal by the process. One of the expected applications of the idea is to aluminum sheets and extruded shapes in airplane manufacture which now are coated heavily with protective pigments against the corrosive action of salt water and salt air.

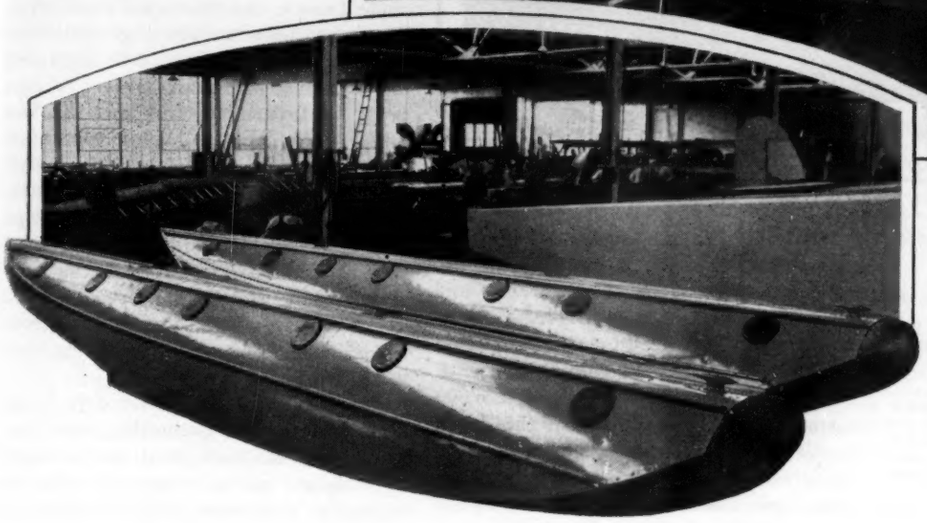
Bibliography Is Issued

A bibliography devoted to the design and manufacture of rolls prior to being put into service in the rolling mill has been issued by Victor S. Polansky, Carnegie library, Pittsburgh. References to patents are limited to mention of the classes of the United States, British and German patent offices, without attempting to list the individual patents. Material on failures, chiefly in service, is included because these are often due to faulty manufacture or composition. Photostatic copies of any of the articles listed can be furnished at cost by the Carnegie library, Pittsburgh.

To Meet at Cincinnati

"Gearing Advertising to Selling," is to be the theme of the eighth annual convention of the National Industrial Advertisers association at Cincinnati, Sept. 30 to Oct. 2. Men prominent in the advertising and industrial fields, as well as editors, writers and college professors, will speak. Annual election of officers will be held the last day of the convention and will be followed by the annual banquet. Jesse R. Harlan, Cincinnati, is chairman of the convention committee.

SECTION of heat treating department depicted at right shows four late-type combustion furnaces equipped with heat resisting insulation



VIEW of the interior of pontoon division with two pontoons in foreground is shown at left. Close-up of units gives detail of construction

Metallurgy Discloses Value of Alloys in Airplane Manufacture

Heat Treating Facilitates Use of Lighter Weight Alloys for Fuselage Construction by Imparting Greater Strength

By C. B. Phillips

Vice President, Surface Combustion Co.

DEVELOPMENT of steel alloys and heat treatments to bring out certain desired physical characteristics has been one of the greatest aids to the advancement of aviation. Stronger and lighter construction both of the plane itself and the engine, are goals sought by all airplane designers and it is here that the metallurgist becomes one of the main supports of this industry.

Fairchild Airplane Mfg. Corp., Farmingdale, Long Island, N. Y., a subsidiary of the Fairchild Aviation Corp., is rated as the largest manufacturer of single engine cabin monoplanes in America. It also builds engines, flying boats and pontoons, its latest type of engine being the Genet, of English design, which it is making under American rights. This engine is 80 horsepower and of the radial air-cooled type.

More than ten different alloy steels go into the manufacture of the planes and engines made by this company and most of them are heat treated to bring out the greatest strength and toughness, as well as other valuable properties. Tubing for the fuselage and welded fittings are made of chrome-molybdenum steel of the following analysis:

Element	Per cent
Carbon	0.25-0.35
Manganese	0.40-0.70
Phosphorus	0.040 max.
Sulphur	0.045 max.
Chromium	0.80-1.10
Molybdenum	0.15-0.25

This alloy is used because its strength is least affected by the process of welding the parts together. The heat treatment consists of heating between 1550 and 1650 degrees Fahr., and quenching and drawing to the re-

Milling machines are employed for finishing parts after heat treatment

quired hardness, according to specifications.

Fittings that are brazed with a gas torch instead of welded are made from a low carbon steel, the analysis of which is:

Element	Per cent
Carbon	0.20-0.30
Manganese	0.50-0.80
Sulphur	0.045 max.
Phosphorus	0.05 max.

The same heat treatment as described is used except that a temperature 25 degrees Fahr. higher is employed.

A nickel steel is used for bolts, taper pins and small machined parts and is of the following analysis:

Element	Per cent
Carbon	0.25-0.35
Manganese	0.50-0.80
Phosphorus	0.04 max.
Sulphur	0.045 max.
Nickel	3.25-3.75

As these are, for the most part, produced from bar stock the only heat treatment is from 1450 to 1500 degrees Fahr., quenched in water and drawn to the required hardness. The quench gives a tensile of better than 150,000 pounds to the square inch with a yield point in excess of 125,000 pounds but these drop with the draw.

Case hardened parts such as piston pins, cam follower tappets, valve cams, etc., are made from a chrome-nickel steel of the following analysis:

Element	Per cent
Carbon	0.10-0.20
Manganese	0.30-0.60
Phosphorus	0.04 max.
Sulphur	0.045 max.
Nickel	1.00-0.50
Chromium	0.45-0.75

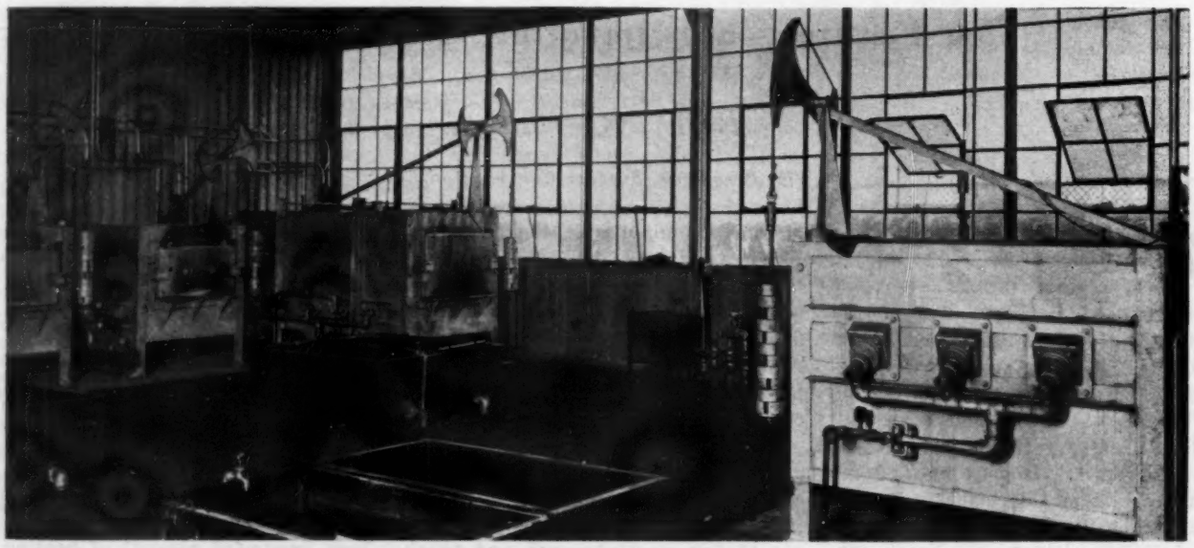
Naturally maximum hardness of the case, maximum refinement of both the case and the core and a minimum of distortion are required. To provide these characteristics, the parts first are carburized at 1625 to 1675 degrees Fahr. after which they are allowed to cool in the boxes. They then are reheated to between 1400 and 1450 degrees Fahr., quenched and drawn at from 250 to 500 degrees Fahr. as required.

Forgings for airplanes and fittings machined from bar stock, such as wing hinges, strut links, strut sockets and ball ends requiring greater strength and toughness than are obtainable with plain carbon steel, are made from a chrome-nickel steel similar in analysis to the one described. The differences include 0.20 per cent more carbon, and manganese. As the grain structure of forgings is less uniform than that of bar stock in most cases, the forgings must be normalized at 1625 to 1725 degrees Fahr. The heat treatment for both forgings and bar stock products produced from this alloy, and exclusive of the normalizing of the forgings, consists of heating from 1475 to 1525 degrees Fahr., quenching in oil and drawing to the required hardness.

For studs, engine rocker arm forgings, crankshafts, connecting rods, etc. a chrome-vanadium steel is employed as these parts require greater strength, toughness and resistance to fatiguing conditions than is possible to obtain with plain carbon steel. The analysis is as follows:

Element	Per cent
Carbon	0.30-0.40
Manganese	0.50-0.80
Phosphorus	0.04 max.
Sulphur	0.04 max.
Chromium	0.80-1.10
Vanadium	0.15 min. 0.18 desired

The forgings must be normalized,



Another view of heat treating department equipped with quenching tanks and seven gas-fired furnaces

as outlined in the preceding paragraph, after which they are reheated from 1550 to 1650 degrees Fahr., quenched in oil and drawn to the required hardness. Those parts which are to be machined after forging and before heat treating, first are normalized and then reheated from 1250 to 1350 degrees Fahr., allowed to cool slowly and machined. After that they are reheated again from 1550 to 1650 degrees Fahr., quenched in oil and drawn.

Parts that require still greater strength than is obtained in the foregoing alloy, such as valve springs, gears, and couplings, are made from a steel similar in analysis but with a 0.10 per cent higher carbon content. These are normalized at 1650 to 1750 degrees Fahr., reheated from 1525 to 1625 degrees Fahr., quenched in oil and drawn. For parts, such as gears, that are to be machined after forging, the same heat treatment is employed with the exception that they are reheated from 1250 to 1350 degrees Fahr., and cooled slowly after normalizing. They then are machined and the rest of the heat treatment applied.

Another chrome-vanadium steel, which is primarily a tool steel, is used somewhat in antifriction bearings, the application in this plant being in push rod ball ends, rocker arm rollers, etc. and has the following analysis:

Element	Per cent
Carbon	0.90-1.05
Manganese	0.20-0.45
Phosphorus	0.03 max.
Sulphur	0.03 max.
Chromium	0.80-1.10
Vanadium	0.15 min.
	0.18 desired

In heat treating the parts first are normalized at 1650 to 1750 degrees Fahr. and cooled to 1000 degrees Fahr. black heat by opening the furnace. They then are reheated from 1300 to 1350 degrees Fahr. and soaked for at least 36 hours, or until the desired structure and machinability are produced after which they are cooled slowly in the furnace. The parts then are machined, heated from 1500 to 1550 degrees Fahr., quenched in oil and drawn.

The heat treating department of this plant is a model of what such a department should be, and is equipped with the latest and most modern partment. There are seven furnaces, including an oil draw, all fired with gas. These furnaces are built to withstand the severe conditions of regular plant service and to deliver steady performance with minimum repairs.

The cast iron sectioning is so designed that the stress of the heat warp is resisted and there is no tendency for the furnaces to spring out of alignment. The linings are constructed of 4½-inch firebrick and tile, thick enough to maintain rigidity, but not so thick as to absorb and waste heat in any large amount. The 2½ inches of heat resisting insulation is most effective in preventing radiation losses, either through the furnace walls or doors. Marked improvement in working conditions is realized.

The larger of these furnaces is 8 feet long, 3 feet wide and 20 inches high, inside dimensions. This unit is equipped with five high-pressure gas burners on each side, which are manifolded to surface combustion inspirators. This system of firing provides an effective temperature range of 700 to 1650 degrees Fahr. and in addition automatically maintain perfect combustion and the desired furnace atmosphere, regardless of pressure changes in the air or gas supply lines.

Firing is so arranged that the heat is distributed rapidly and uniformly to all parts of the furnace from a restricted and controlled zone of combustion. This system of firing and the use of single valve control leads to economies in fuel and in labor, while production is put on a sure basis.

The other furnaces are similar in design and construction but of somewhat smaller dimensions. All are provided with automatic temperature controls so that when the proper time cycle is maintained there can be no variation in the heat treatment given the work, from one charge to another. All duralumin parts are heat treated in these furnaces.

Electrochemists Arrange Fall Meeting

The fall meeting of the American Electrochemical society will be held at Pittsburgh, Sept. 19-21, with headquarters at the William Penn hotel. The general program will include visits to a number of industrial plants in the Pittsburgh district, and technical sessions at which papers on various electrochemical subjects will be presented by prominent engineers. Among the papers to be presented are:

"Recent Developments in the Analysis of Carbon in Iron and Iron Alloys," by N. A. Ziegler, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.

"The Use of Tantalum as Cathode for the Electrodeposition of Copper," by L. W. Strock and H. S. Lukens, University of Pennsylvania, Philadelphia.

"The Determination of Sulphate in Chromic Acid and in Chromium Plating Baths," by H. H. Willard and Richard Schneidewind, University of Michigan, Ann Arbor, Mich.

"The Design and Operation of Vacuum Furnaces with Carbon Resistor Tubes," by A. S. King, Mount Wilson observatory, Pasadena, Calif.

"On the Road to Pure Iron and Some of its Indicated Properties," by T. D. Yensen, Westing house Electric & Mfg. Co., East Pittsburgh, Pa.

Yawata Steel Works, Japan, is planning to enter the Chinese market with finished steel products.

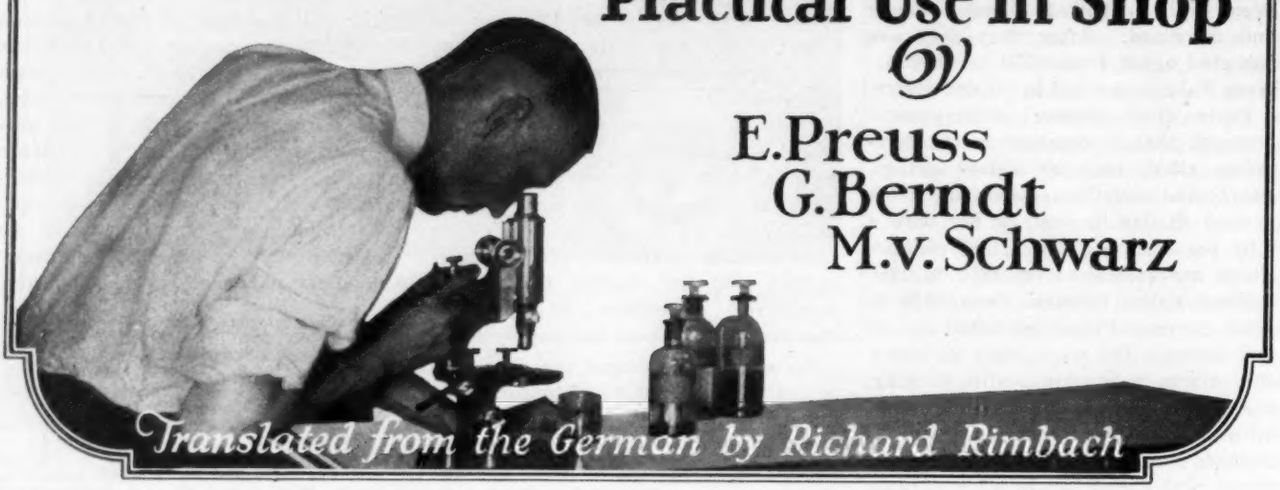
Makes Taxi Stand Sign of Steel Castings

FOUNDRYMEN constantly are finding products which may be made much more satisfactorily with castings than by other methods of fabrication. Recently, the Fort Pitt Steel Castings Co., McKeesport, Pa., introduced the use of steel castings in the construction of signs for marking taxicab stands and for other advertising purposes.

This sign, which is shown in the accompanying illustration, is constructed of three castings, namely the plaque, showing the outline of the cab, the upright stand, with the word taxi on it, and the circular base. The oval shaped piece at the top is bolted to the part which has the word taxi cast in. The upright then is fastened into the base and is bolted under the base. This arrangement provides an underslung construction, and adds to the difficulty of upsetting the entire unit. Another feature claimed for the sign is that it is practically unbreakable.

The sign is finished in any color combination desired to accord with the colors employed by the user. In addition, the word yellow shown in the illustration is interchangeable on the patterns so that other words may be substituted to meet the needs of the user. This also is true with the abbreviated wording in the parenthesis. Because of the distinctive features of this advertising medium, the company has named it the "Sign of the Times."

Metallography Simplified for Practical Use In Shop



By
E. Preuss
G. Berndt
M. v. Schwarz

Appendix—Supplementing Microscopic Testing by Other Methods (Concluded)

DETERMINATION of heat expansion is important since it gives valuable information on the occurrence of transformation points. The expansion is measured with the dilatometer, an apparatus only recently introduced in plant laboratories. Fig. 231 represents the dilatometer of W. C. Heraeus, in which test rods 4 millimeters diameter and 100 millimeters long are used. In Figs. 229 and 230 some heating and cooling curves are shown, about 1/3 full size, which were taken automatically with this dilatometer photographically. The arrows pointing to the right show the heating curves while those pointing to the left indicate cooling curves. The arabic numbers 1 to 4 refer to the four following samples:

1. Silversteel, glass hard, heated to 500 degrees Cent. The curves show the changes of length which are discontinuous for the first heating only (upper part) and characterize this steel at annealing.

2. *a*, *b*, and *c* show the heating curves of three different samples of invar steel from 25 to 500 degrees Cent.

3. Heating and cooling curves of electrolytic iron with the transformation point.

4. Heating and cooling curve of a sample of high-speed steel to above the transformation point.

The Rockwell dilatometer is shown in Fig. 232. This instrument is a practical plant instrument and in

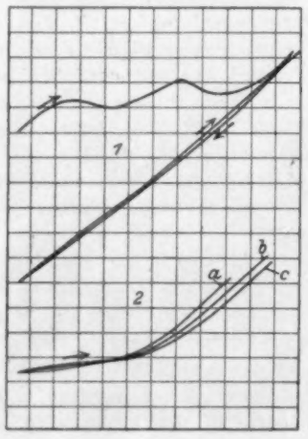


Fig. 229—Heating and cooling curves made with Heraeus dilatometer

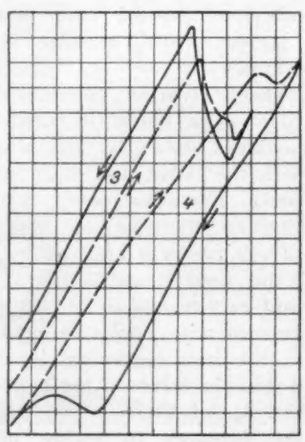


Fig. 230—Heating and cooling curves made with Heraeus dilatometer

Series Is Concluded

IRON TRADE REVIEW presents herewith the second and last part of the appendix as the concluding installment of the metallography series by E. Preuss, G. Berndt, and M. von Schwarz. This well-known book, translated from the German by Richard Rimbach, has been appearing serially in IRON TRADE REVIEW *every two weeks since June 14, 1928. The authors in their preface explain that the book was written not as a textbook but as a guide to the manufacturer whose facilities are limited to the minimum and simplest of equipment. The text was prepared in a straightforward manner to be easily understandable to the practical man. It has been the aim of the authors to avoid as far as possible, theoretical discussion. Judging from the many comments from readers of* IRON TRADE REVIEW, *the series has been received with enthusiasm.*

place of a sample the critical point of the piece to be heat treated is determined directly.

It is evident that for definite mechanical requirements on a material, properties of the steel including hardness, elastic limit, yield point and breaking strength, as well as elongation and reduction of area will be determined. As previously indicated the product of tensile strength and per cent elongation gives a measure of the quality. From the location of the elastic limit in comparison to the breaking strength, it can be seen whether the sample was annealed or cold-worked and heat treated. The history of the sample is indicated by the fact that the cold-worked sample has the smallest elongation. However, the physical testing will always be of a subordinate nature to the microscopic examination.

Fatigue tests of the old type usually were carried out in research laboratories because of the length of time required to complete a test. Sometimes a test took several years. For this reason, the Krupp continuous impact test, the Lehr-Schenk continuous tensile testing machine, and the testing of damping capacity of O. Foeppl, recently enjoyed great favor and gained importance for the testing and evaluation of metals used in the construction of automobiles, because they could be completed speedily, and with certain results on the probable behavior of the materials in service. In recent testing of materials, engineers have endeavored to adapt the testing methods as much as possible to the conditions in actual service.[77] Dynamic testing of materials is receiving more and more attention[78] of research engineers in industry.

[77]Compare M. von Schwarz: Die Giesserei, Vol. 11, No. 10, pages 126-127, 1924.

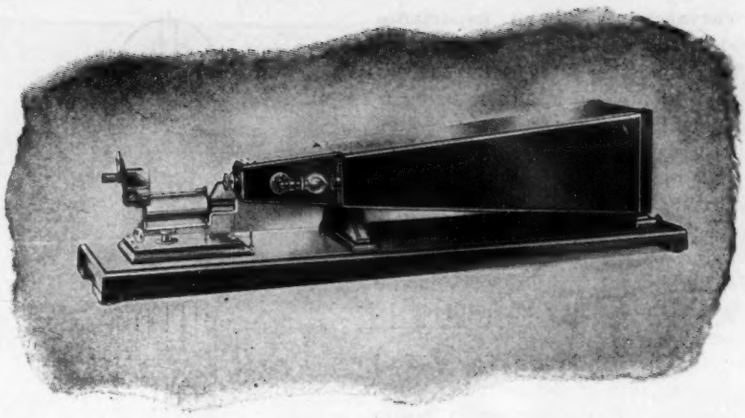


Fig. 231—Dilatometer of W. C. Heraeus

Of special interest is the hardness test, which can be made quickly and with certainty. With ductile materials this test indicates the tensile strength. The brinell hardness test already has been well introduced and is so well-known that it need not be considered in detail here. Recently, however, the dynamic methods for hardness testing have become more important than previously, due to their simplicity and adaptability to the stresses actually occurring.[80] The drop hardness tester of M. Von Schwarz[81] may be mentioned briefly. Because of its rugged construction it is particularly adaptable for shop use.

[78]See E. Lehr. Die Abkuerzungsverfahren zur Ermittelung der Schwingungsfestigkeit. Thesis. Stuttgart. 1925.

[79]Compare P. W. Doehmer, Die Brinellsche Kugeldruckprobe, Berlin, Julius Springer, 1925.

[80]Compare M. von Schwarz: *Stahl und Eisen* Vol. 42, pages 582-588, 1922; eitschr. f. Metallkunde, September issue 1921 and Maschinenbau 1923-24, No. 10, page 316 ff; further R. Baumann: Zeitschr. d. Ver. deutsch. Ing. 1926, pages 403-404.

[81]Made by Schuchardt & Schuette, Berlin C2, Spandauerstr. 28/29.

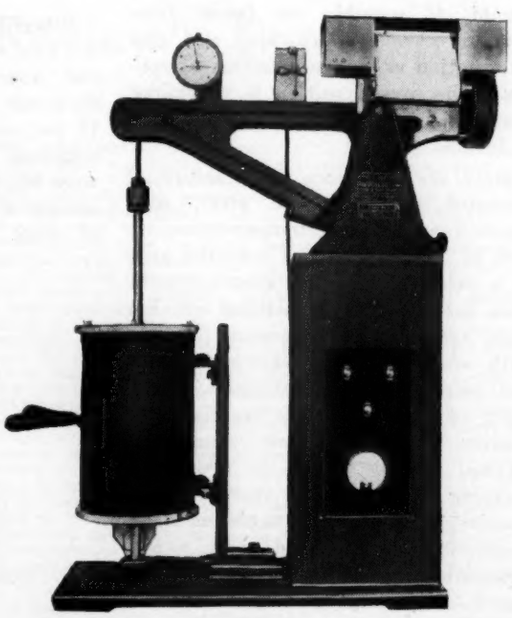


Fig. 232—The Rockwell dilatometer

In this instrument the impact is effected by a falling weight so arranged in a tube that the height of drop remains constant. To change the energy of impact, especially in testing softer materials, a weight of ¼ kilograms replaces that of 1 kilogram normally used for cast iron and steel.

The arrangement of the drop hardness tester can be seen from Fig. 234. It has on the top a level to set it in a vertical position. To measure hardness the drop hardness tester is placed on a level face of the sample and the impact of the falling weight causes the steel ball in the lower end to make an impression. It is important that the sample have a sufficiently large compact mass, about 30 kilograms, or that smaller pieces are placed on a steel support such as an anvil. The diameter of the impression is measured most simply by a small miroscope. From the relation between the ball impression made in this manner and the brinell hardness, the tensile strength of the steel can be determined from a diagram or directly from the transverse scale of the measuring microscope.

The magnetic testing of steel parts recently has attained, particularly in America, greater importance because of the fact that inequalities of partly finished or finished products can be detected quickly. In this way, steel cables,[82] tie wires for airplanes, rails,[83] etc., are tested nondestructively and defects recognized.

To indicate toughness, the determination of the bending strength of wire strips and sheets is most suitable. To do this, strips about 10 millimeters wide and 100 millimeters long are held in a vise with jaws of a certain radius of curvature, usually about 2 to 5 millimeters. Since only relative comparisons are considered,

[82]Compare R. L. Sandfort: technologic papers of the United States bureau of standards No. 315, pages 497-518.

[83]Thomas Spooner, Instruments, Vol. 2, No. 1, 1929.

the curvature is of no importance provided the same is always used.[54] At first, the strip is bent 90 degrees to one side and back again, using a wooden mallet. This is considered as a single bend. Then to the other side and back to its original position, constituting the second bend. This is repeated until a fracture occurs. Hard and brittle material breaks after a half bent, while soft ductile sheets give a bending strength of 12 or more.

For testing brittleness, the notched bar impact test gives more satisfactory results. For quantitative measurements the test is carried out with a pendulum impact arrangement on test rods, for which certain dimensions similar to tensile specimens are fixed. For an operating test, the simple notched bending test of E. Heyn is usually sufficient. For this test, a sharp notch ½ millimeter deep is planed into a test piece 4 x 6 x 60 millimeters by a tool having an angle of 60 degrees as shown in Fig. 233. These small dimensions make it possible to take samples from boiler plates or from different zones of the same material, a procedure which is of particular importance for segregated material.

Rod Bent in Vise

The notched rod as shown in Fig. 235, is then fastened in a vise and bent 90 degrees by a blow with a hammer in the direction of the arrow. This counts as the first bending. It then is straightened out again in the vise, as the second bending, and this repeated until fracture occurs. For soft, tough carbon steel the bending number 4 is obtained, (abbreviated B=4), while for very brittle or overheated steel the bar breaks at once at the first blow without deviating greatly from its original position. It then has the bending number 0.

According to the behavior under this test, the material can be divided into eight grades from 0 to 4 in steps of ½, which is sufficient for ordinary practice. Since the notch toughness perpendicular to the direction of rolling is usually smaller than in the direction of rolling, the samples should, if possible, be taken from both directions. This also can give information as to the direction of rolling. The presupposition is, of course, that there are no large nonmetallic inclusions.

Here the difference in solubility of annealed and hardened steel, steel drawn at different temperatures, as well as cold-worked and reheated steel in a solution of 1 per cent sulphuric acid, should again he pointed out. For this, samples of 20 grams of steel with surfaces as similar as possible are selected and suspended individually in different glass vessels. Previously, however, they should be cleaned of all traces of grease by washing with alcohol and ether or benzine, respectively, noninflammable trichloride-ethylene, and their weight determined. After 24 hours, they again are weighed after carefully wiping off any rust which might have formed. For comparison, the same tests are made with a piece of the same material annealed for 30 minutes at 900 degrees Cent.

[54]For wires and strips special apparatus has been made with interchangeable jaws of different curvature. According to a personal communication by S. Rejto, the radius of curvature should be = 2.16 of the wire or strip diameter, because then the number I of single bends has such a ratio to the flexibility K that log I = K.

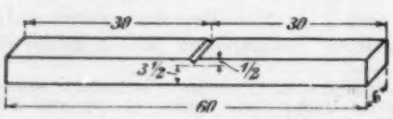


Fig. 233—Knotched impact bending test of E. Heyn

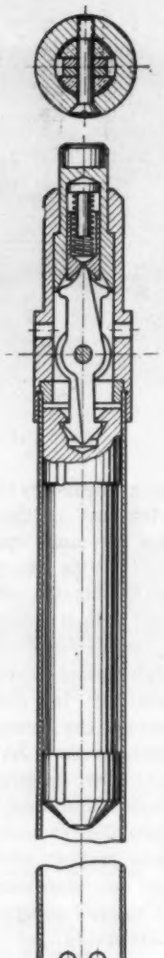


Fig. 234—Section through drop hardness tester of M. von Schwarz

Standardization Program Is Reviewed

Important developments in the national standardization activities of almost every major American industry are described in the American Standards year book, an 88-page review of the national industrial standardization movement during the past 12 months. The book is published by the American Standards association, 29 West Thirty-ninth street, New York, and covers mechanical, electrical, building, transportation, mining, textile and other industries. The book lists altogether about 150 national standards which have been completed and about 175 other national projects.

Standards completed under auspices of the association during the past year include standard track gages and car sizes for metal mines; a group of six specifications for bare and insulated copper wire; two more standards for pipe flanges and fittings; and specifications for track work, covering material for steam and electric roads.

The year book also lists nearly 550 trade associations, technical societies and other organizations co-operating in the establishment of industrial standards, and approximately 2200 individuals who have been active in the work of the technical committees engaged on the projects.

Wheeling Earnings High

Wheeling Steel Corp., Wheeling, W. Va., reports net earnings for second quarter, available for common dividends are $1,678,974, equivalent to 17 per cent on the common stock outstanding. Net profits for first half were $4,137,538, equal to $7.12 a share, compared with $3.10 for first half of 1928.

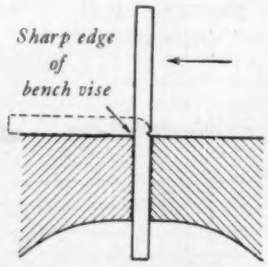
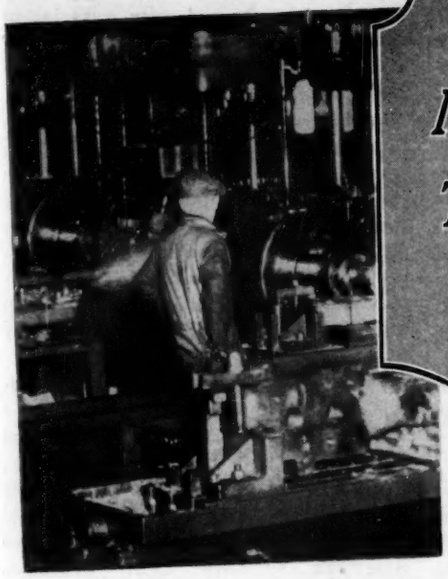


Fig. 235—Knotched impact bending test of E. Heyn



New Machine Tools and Shop Equipment

"Without tools man is nothing, with tools he is all."—Carlyle

Switch Mechanism Aids Shaft Lineup

No. 167

General Electric Co., Schenectady, N. Y., announces a new type of operating mechanism for use with drum switches mounted in crane cabs and similar places. The mechanism consists of a pinion on an extended drum switch shaft, meshing with a segment gear, all housed in a dust-tight cast case provided with plugged access hole for gear slushing and with a short lever arm projecting below the case. The lever arm can be connected with the reach rod in the same way as with the rack and pinion type of mechanism. As the segment gear and its shaft are capable of assembly in different positions, varying by 60-degree increments, the operating lever may be located in other normal "off" positions than the one at right angles to the conventional center line of the switch, if required by the installations.

Wire Brush Cleaner Is Driven by Air Motor

No. 168

Paasche Airbrush Co., 1909 Diversey parkway, Chicago, recently has announced the development of an air motor cleaner for removing rust, scale and loose paint from surfaces to be painted. The device consists of an air operated motor driving a 4-inch diameter wire brush wheel. The motor is attachable to air supply by a flexible hose and the speed is regulated by an air valve at the motor coupling connection. Air consumption is from 8 to 16 cubic feet of free air per minute, depending upon the speed. Net weight is 10 pounds. Overall length is 11 inches.

Electric Bench Grinder Has Ball Bearings

No. 169

Millers Falls Co., Millers Falls, Mass., recently has placed on the market a new 6-inch ball bearing equipped electric bench grinder. The machine

Iron Trade Review's Calendar of New Equipment

Item	Comment	Builder	No.	Date Described	Page
Bucket	Manually-loaded dump bucket; welded scoop	Edgar E. Brosius Inc.	143	July 11	86
Alloy	Nonferrous; machinable and highly resistant to acids	Burgess-Parr Co.	144	July 11	86
Switch	Magnetic; throws small motors across the line	General Electric Co.	145	July 11	87
Controllers	Reversing drum controllers for heavy-duty work	Westinghouse Electric & Mfg. Co.	146	July 11	87
Metal polishers	Motor-driven; 7-foot flexible shafts	Stow Mfg. Co.	147	July 11	87
Shape cutter	Six-torch universal shape cutting machine	General Welding & Equipment Co.	148	July 11	87
Chamfering machine	Equipped for chamfering wide variety of gear teeth	City Machine & Tool Works	149	July 18	144
Grinders	Bench and pedestal types; enclosed	Hill-Curtis Co.	150	July 18	145
Gage set	Radius gages; 16, varying from 1/32 to 17/64-inch	Lufkin Rule Co.	151	July 18	145
Drill	Multiple-spindle medium-size machine; hydraulic feed	National Automatic Tool Co.	152	July 18	145
Electrode holder	Clamp-type; holds electrode wire in any position	General Electric Co.	153	July 18	145
Testing machines	Complete line of metal testing units	Losenhausenwerk, Germany	154	July 25	203
Drill	High-speed sensitive type; two speeds	High Speed Hammer Co.	155	July 25	203
Saw	High-speed type for cutting off nonferrous shapes	Hunter Saw & Machine Co.	156	July 25	204
Sand mixer	Moving and fixed blades in circular stationary pan	C. & B. Smith, England	157	July 25	204
Drill	Multiple-spindle type; six spindles on 7½-inch centers	Kent Machine Co.	158	July 25	204
Presses	Toggle presses for punching flanges and webs	Beatty Machine & Mfg. Co.	159	July 25	205
Electrode	For welding mild steel and cast iron repair work	Lincoln Electric Co.	160	Aug. 1	265
Blue-printing machine	Exposes, develops, washes and dries prints continuously	C. F. Pease Co.	161	Aug. 1	265
Trucks	Three-wheel trucks for carrying acetylene generators	Oxweld Acetylene Co.	162	Aug. 1	265
Milling machine	Cam feed to head; suitable for high production	Kent-Owens Machine Co.	163	Aug. 1	266
Tapping machine	Friction-driven, geared and semiautomatic	Rickert-Shafer Co.	164	Aug. 1	266
Woodworking machine	Improvements on former type; portable, increased power	De Walt Products Corp.	165	Aug. 1	266
Water coolers	Electric; control of temperature provided	Frigidaire Corp.	166	Aug. 1	267
Switch Mechanism	Drum switch operating mechanism for use in crane cabs	General Electric Co.	167	Aug. 8	331
Cleaner	Air motor driving rotating wire brush; portable	Paasche Airbrush Co.	168	Aug. 8	331
Grinder	Electric bench type; 6-inch wheels; ball bearings	Millers Falls Co.	169	Aug. 8	331

is built with two 6-inch abrasive wheels having ½-inch faces and ½-inch holes. The motor is totally enclosed and ¼-horsepower in capacity, either direct-current or alternating-current type. Two adjustable guards and two tool rests, adjustable for wheel wear or tilt, are provided. Speed obtainable with the direct-current or 60-cycle alternating-current types is 3500 revolutions per minute; with the 25-cycle alternating-current type, 1450 revolutions per minute. A toggle switch is located at the front of the grinder base. Net weight is 41 pounds; overall height, 9½ inches; and overall width, 12¾ inches.

Foundry Is Expanded To Meet Demand

(*Concluded from Page* 320)

cleaning room by cables attached to electrically-operated capstans mounted on the floor beyond the ends of the rail switches leading to the oven.

Eight and sometimes nine 3-ton heats a day are taken from a 1½-ton electric furnace made by the Pittsburgh Electric Furnace Corp., Pittsburgh. Electric current for the furnace, also for operating other pieces of equipment is purchased from the Toledo Edison Co. Graphite electrodes are employed in the furnace which operates most of the time on carbon steels. Alloy heats are made occasionally including a high-manganese steel used extensively in certain types of railroad rolling stock. The carbon in this steel ranges from 0.20 to 0.30 per cent and the manganese runs from 1.20 to 1.50 per cent. Annealed at 1700 degrees Fahr., and then allowed to cool slowly this steel shows a tensile strength of 95,000 to 105,000 pounds per square inch and an elongation of 20 per cent in 2 inches. Other physical properties include: Yield point 60,000 to 65,000 pounds, reduction in area 36 to 40 per cent and a brinell of 170 to 180.

Scrap for the charge made up largely of plate clippings is brought in from the stockyard by a magnet suspended from a monorail. The material is loaded in long pans mounted on wheels and also provided with attachments for the crane chains. Each pan load is weighed on a platform scale located a short distance from the charging door of the furnace and made by the Toledo Scale Co., Toledo, O. The nose of the loaded pan is inserted in the furnace. The rear end then is raised by the crane and the contents are spilled in the interior of the furnace.

Up to the present the melting capacity of the furnace has been sufficient on single shift to keep pace with the output on the molding floors. With the anticipated increase in production from the greatly expanded floor space the furnace will be operated one or two or perhaps more hours at night, or, if conditions warrant, it will be operated on a double shift.

Metal is melted exceedingly hot and the entire charge is tapped into a single crane ladle. The steel is poured directly over the lip of this ladle into medium and heavy weight castings in one bay of the foundry. In the other bay the steel is poured over the lip of the ladle into hand ladles and double shanks. The ladle remains in one position and the metal is transferred rapidly by a special pouring gang to any designated collection of molds. After the steel is poured, the pouring gang becomes the shakeout gang. Under the piece work compensation rates which have been established, a definite amount is paid for pouring each mold and another definite amount for shaking it out. The amounts are totaled each day and divided equally among the group of men.

On some heats, part of the contents of the ladle is poured in one bay and the remainder poured in the other bay. A shop device has been developed for transferring the ladle from one bay to the other quickly and with a minimum loss of temperature in the steel. After the last hand ladle or shank has been filled in one bay the crane ladle is not tipped back to a perpendicular. It is held in a partly tipped position and lowered upon a pair of standards attached to a truck mounted on a section of roller conveyor. The crane hook is disengaged, the ladle and truck are pushed into the second bay where the ladle is, picked up by the second crane with the steel in the same relative position as when the last ladle was filled in the first bay. The transfer truck was supplied by the Whiting Corp., Harvey, Ill., and the section of roller conveyor is part of an extensive roller conveyor installation supplied by the Matthews Conveyor Co., Ellwood City, Pa.

Ladles are dried and heated on a special oil-fired device developed and built by the millwright staff of the foundry. In fact this ingenious crew of all around handy men assisted in building the plant and erected and installed practically all the equipment. The large ladle is dried in a horizontal position with the mouth up against a brick wall through which the flame from an oil burner enters the ladle.

Small ladles are heated on the inside to a bright red over a series of small openings in the upper face of a circular hollow brick structure 30 inches high and 8 feet in diameter. The brick chamber is divided into four sections and each section is served by an oil burner inserted at a tangent from the outside. The flame completely fills the chamber and flows up through the openings into the inverted small ladles. The chambers may be operated independently or all together to dry and heat 4, 8, 12 or 16 ladles.

In addition to several tumbling barrels the cleaning room is equipped with a large sandblast room and table made by the Pangborn Corp., Hagerstown, Md., and one of the new combination tumbling barrels and sandblast outfits manufactured by the American Foundry Equipment Co., Mishawaka, Ind. Two air compressors made by the Chicago Pneumatic Tool Co., have been supplemented by a 17 and 10½ x 12-inch direct-connected, synchronous motor driven unit made by the Ingersoll-Rand Co., New York.

Continues Investigation of Soil Corrosion

Further results of the soil corrosion investigation being conducted by the bureau of standards, Washington, show that the character of the soil largely determines the rate and character of the corrosion. A third group of specimens, removed in 1928 after being buried approximately six years, reveal that in most soils the rate of corrosion seems to decrease with time. Only minor differences in rates of corrosion of different ferrous pipe materials have been observed, but it is believed that sufficient data are available now to justify a comparison of materials. A detailed report on specimens thus far examined and a description of various soils and their effects will appear in the forthcoming issue of the bureau of standard's *Journal of Research.*

Mining Group To Meet

Announcement has been made that the twenty-seventh annual meeting of the Lake Superior Mining institute will be held Sept. 6-7. Headquarters will be maintained at the Houghton club at Houghton, Mich., the itinerary including numerous trips through the surrounding copper country. A technical program also is being arranged. A. J. Yungbluth is secretary of the organization.

Editorials

Efficiency Replacing Inefficiency

PRODUCTION engineers frequently are confronted with difficulties in processes, equipment or materials and in searching for improvements they strike upon new ideas startling in their importance. In the solution of many problems manufacturing plants have been known to effect substantial economies in production, mechanical power, man power and cost. The period of severe competition of the last four or five years has necessitated rigid economy all along the line, but in few instances has publicity been given to interesting achievements.

The article appearing on Page 322 of this issue of IRON TRADE REVIEW describes a most unusual saving made by the Ford Motor Co. in the manufacture of one small part. To finish the ball on the radius rod yoke of the Model A car, this company employed 18 machines equipped with form tools to produce at the rate of 9000 a day and during a relatively short period 50 barrels of rejects accumulated because of failure to conform to limits.

In eliminating this waste, Ford engineers designed a special machine based on the principle of finishing a round part to size by rolling pressure. This machine is capable of finishing the parts at the rate of 600 an hour and has released for other work 12 men on each of the three shifts. In addition, power is required for one machine instead of 18 and much floor space becomes free for other uses. Since the machine automatically finishes to size, the rejected parts were salvaged and further rejections were eliminated.

This is a most graphic example of opportunity afforded the production engineer. The manufacturer having facilities to convert inefficiency into efficiency is the most likely bidder for success in his line of industry.

Pig Iron and Scrap Signal "Clear"

CONTINUED strength in the pig iron and iron and steel scrap markets is in keeping with favorable conditions that have prevailed in the steel industry since the first of the year and confirms the prediction of heavy seasonal production.

Valley pig iron prices for July held unchanged from the levels of May and June, which in itself is contrary to precedent, while the end of July also found prices higher than at the beginning of the year. Every previous year since 1922 has witnessed a decline from January to July. The statistical position of the pig iron industry is good. Active demand of the past 12 months has been in excess of production, with the result furnace stocks have declined steadily. Surplus iron of producers is estimated at considerably less than one-half the tonnage on hand a year ago, and for some interests stocks are practically exhausted. At the same time, the fact that pig iron prices usually decline during summer influenced consumers to restrict their stocks, resulting in a closer relation of supply to demand.

Heavy melting steel scrap has fluctuated but little in price so far this year when it is considered that steelmaking has been of record proportions. The current quotation is only slightly below the 1929 high and a steady tone prevails throughout the market. In this raw material also, reserve stocks have been absorbed in the past year and dealers have been forced to depend more and more upon the regular output of scrap for their supplies.

Pig iron and scrap usually signal the approach of a waning steel demand. The even tone in both today indicates fair weather for the immediate future.

Wages on Plateau for Five Years

WAGES are "bound to become better than worse in this country," according to Henry Ford, commenting on labor conditions, on the occasion of his sixty-sixth birthday. High wages and the doctrine of mutuality of interests in industry have solved many labor problems that were threatening to undermine the security of the nation ten years ago. Then many serious thinkers were in a quandary as to how labor and management could be brought together, without one dictating to or usurping the functions of the other. High wages worked out so successfully that now it is a common assumption that they "are bound to become better than worse."

But they have not shown any pronounced tendency to become better over the past five years. They have been on a plateau, and the question whether they were to rise or fall has been asked less frequently than ever before. The fact has been established by the National In-

dustrial Conference board that hourly earnings per worker in 25 major branches of manufacturing in the past five years have varied only 2 cents from maximum to minimum, and only 1 cent during the full year of 1928. Average weekly earnings, influenced more by hours of labor, fluctuated only $2.67 between the two extremes in five years, and only 67 cents in 1928. The board surveys all industries, and this is its conclusion: "Under present economic conditions no radical change in rates of pay is likely to occur without radical changes in the business situation."

To say wages are surely going higher is to express the popular, or politic, thought; in fact, everyone hopes his income will increase, whether it be in the form of wages, salaries or dividends. Ford expresses our national optimism; the conference board's opinion is based on the premise that fundamental changes must occur in our economic set-up before adjustments can be made to support higher wages.

Structural Markets Are Expanding

DEVELOPMENT of new industrial centers throughout the United States is expanding markets for structural shapes. Although dominance of large city buying is likely to continue unbroken, the influence which industry plays in the structural business will become increasingly important.

Decentralization of manufacture, carrying the sites of production close to markets, is more pronounced. Construction of tire and rubber plants in California and in Georgia are typical of this movement. Of 1053 projects for which IRON TRADE REVIEW reported structural steel awarded in the first half, 403 were of industrial nature. These involved 305,306 tons of a total of 1,109,300.

Automobile plants in the Detroit district, metalworking plants around Pittsburgh, rayon mills and power projects in the Tennessee and West Virginia areas, oil refineries and buildings in Texas and Oklahoma, were a few of the types of industrial activity that contributed to an active first half in the structural fabricating industry.

The Human Side of Mergers

FROM the standpoint of pure economics there is much to justify the wave of mergers which has been sweeping the country in recent years. Economies are possible in purchasing and production, sales effort can be made more effective, overhead can be pared, a better financial structure set up and a better or a lower-priced product offered the public.

But there is a humanitarian side which cannot be evaluated in dollars and cents. In every institution figuring in a merger are men who have devoted their best energies to its upbuilding. Into their company they have poured the thoughts and endeavor of a lifetime. Far beyond what the externals of office routine reveal, they have given of their time. Their company, in fact, is their life.

In the process of merging, two executives in corresponding positions are brought into unsought conflict. Through some fortuitous circumstance, one is retained and ascends to still greater responsibilities. The other is out; the structure of a lifetime topples; at middle age or worse a new start must be made. For the laborer or mechanic the transition is not so hard, but for many executives or those in the lower reaches of the white-collar class it is impossible.

Those who manipulate the machinery of merging are not dealing alone with stocks and bonds and brick and mortar. They are trafficking in humanity, in the hopes and ambitions of men. They must take into account the personnel and morale which are the motive power of any worthwhile institution.

Census Shows Steel Development

LARGER production from fewer establishments, greater wage payments to fewer workers and vastly increased use of power are factors of the growth of the blast furnace and steelworks industry in the present century. Figures gathered by the federal census of manufactures indicate clearly these tendencies, which have been visualized in general by all observers. The figures make the impression more concrete.

In 1899, at the close of the nineteenth century, the census reported 668 establishments in this classification, while in 1927 there were only 602. The peak in number was reached in the census of 1919, just after the end of war expansion before economic development had had opportunity to assert itself.

The horsepower of prime movers in plants in 1899 was 1,598,000, increased to 5,400,000 in 1919 and 6,781,000 in 1927. The larger unit thus is clearly shown to be continuing its development.

Wage earners increased from 222,490 in 1899 to 389,270 in 1927, a gain of nearly 60 per cent, but the wages paid to them increased more than 500 per cent, from $121,000,000 in 1899 to $646,000,000 in 1927. Thus the man, plus power, was able to earn on the average three times the wage he commanded at the end of the last century.

Statistics may be dry, but the march of progress and change paints with a broad brush, the strokes of which stand revealed in the tabulated summary of the census.

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E. L. SHANER, Editor. — *J. D. PEASE, Advertising Director.* — *F. F. LIGHT, Circulation Manager*

How Foundry's Efficiency Has Been Increased by Expanding Facilities. Page 317.

THE series of articles "Metallography Simplified for Use in the Shop" which have been published semiweekly in IRON TRADE REVIEW since June 14, 1928 is concluded in this issue. This in fact has been a book, written by three well-known German metallurgists, and translated by Richard Rimbach. Comment received from readers of IRON TRADE REVIEW indicates this type of information on metallography, particularly for shops that do not have elaborate laboratories, has fulfilled an important mission.

The Readers' Page

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The Business Trend

Steel Industry in New Earning Era

By JOHN W. HILL, Financial Editor

THE first half of 1929 brought unmistakable evidence that the iron and steel industry has entered a new era of earnings. Reports of all leading companies in the industry covering operating results over the six-month period ending June 30 reveal large increases in profits. For the first time in recent years returns on capital investment in the iron and steel industry appear to be emerging from a depression level.

THE first half of 1929 was remarkable not only for large volumes of production and shipments but also for the fact that price levels were higher at the end of June than at the end of January. This is being generally accepted as an indication of the most convincing kind that there is no longer a wide margin between productive capacity and consumptive requirements in the industry.

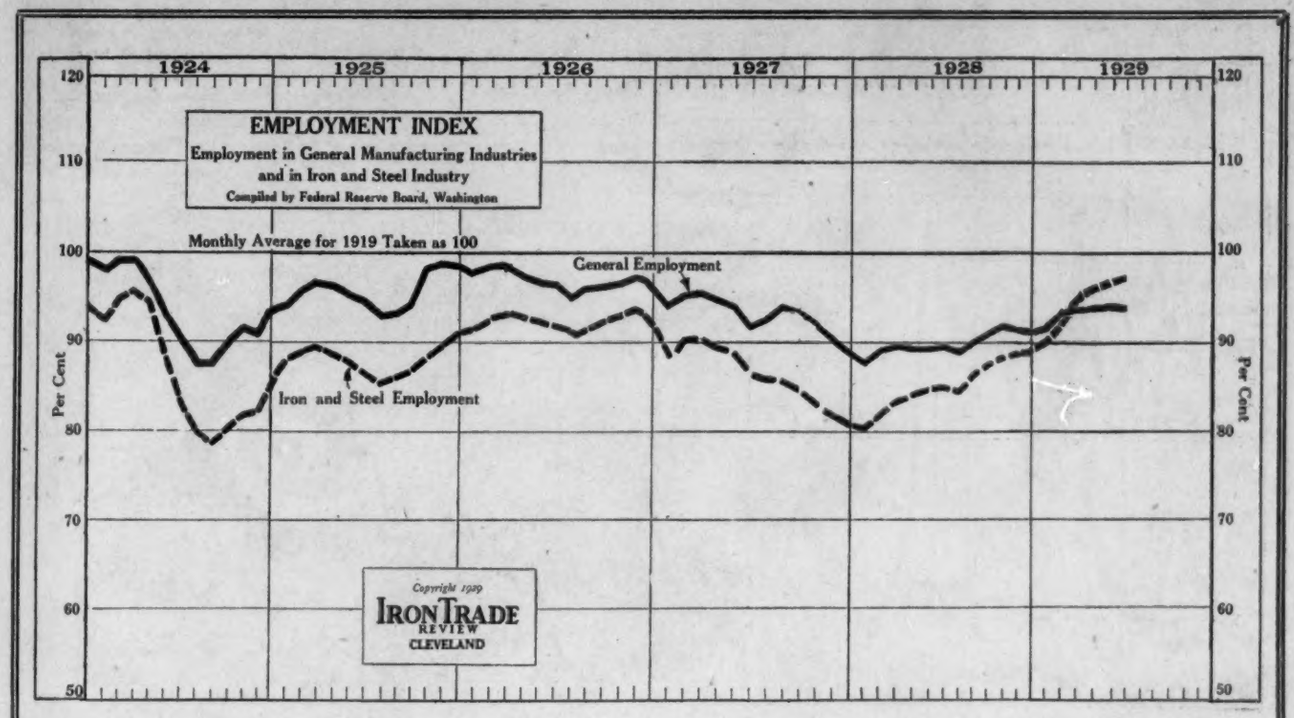
IF THE industry has reached a plane of more wholesome balance between supply and demand this probably constitutes the most important fundamental development for steel in a decade. Immediately following the war and until very recently the feeling prevailed that an enormous overcapacity existed in the trade.

DURING the current year the results of two great trends are being witnessed. One is the expansion of consumption of steel to a point which has taxed the producing facilities of the mills for a longer period than ever before in peacetime. The other great trend which is being seen this year is increased efficiency in the mills. This higher efficiency more than the small lift of prices in the first half accounts for the better profits reported.

THE graph traces the course of monthly earnings of the United States Steel Corp. over a period of years. In no other peacetime year have profits of this large interest ever climbed so high. Second quarter earnings were $71,995,461, against $46,932,968 in the like period of 1928.

THE large increase in net profits for the second quarter and first half of 1929 for the United States Steel Corp. was equaled or bettered by most independent companies. On the whole, the iron and steel industry presents the most encouraging picture of any recent year. While fluctuations in demand and production have not passed, the continued strong activity of the summer is a highly constructive factor.

The Business Trend

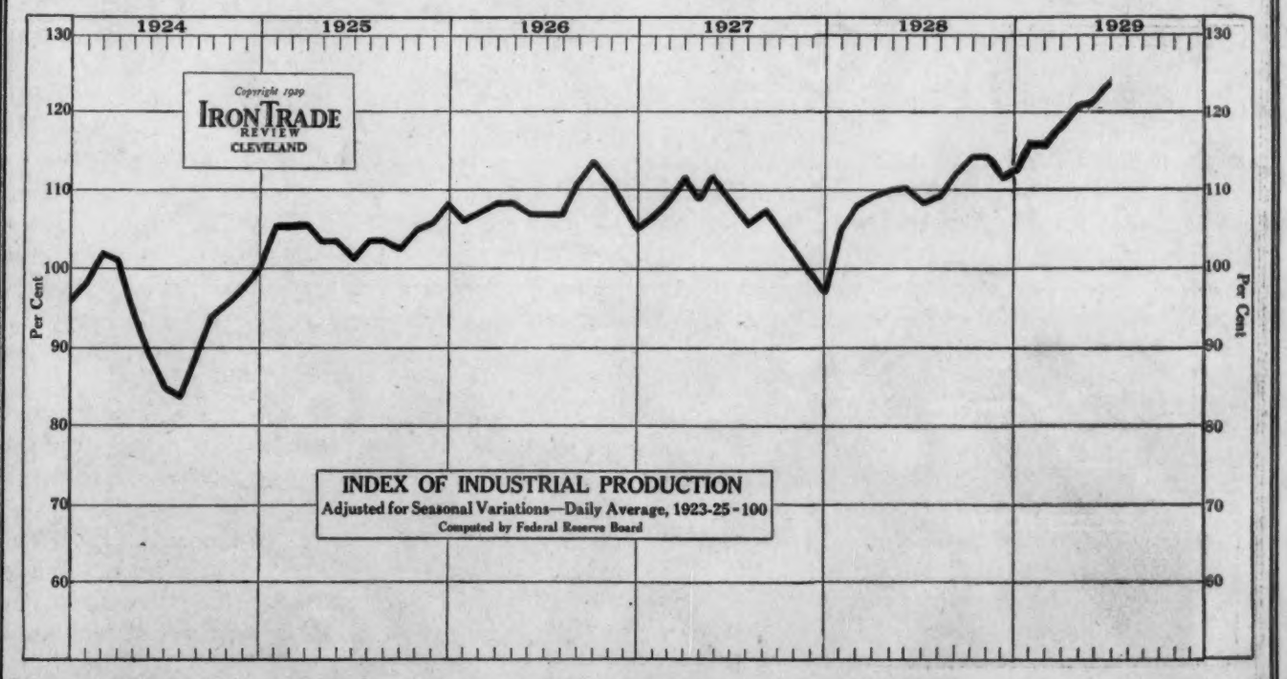


Employment Index

THE relatively high rate of iron and steel production compared with many other lines is revealed in the report of employment for June. This report, compiled by the federal reserve board, shows that employment in iron and steel mills during June stood at an index of 98.5. This compares with 97.8 one month before and is well above the level of employment one year ago. Employment for all industry during the month showed a small decline. The index, standing at 94.3, compared with 94.6 in May.

Industrial Production

GENERAL industrial output reached a new high point in June, the index compiled by the federal reserve board standing at 125, compared with 123 one month before. Large scale operations in iron and steel mills, automobile plants and other manufacturing establishments, continuing at a high rate, accounted for the heavy volume of industrial production. One year ago the index of industrial production stood at 108, having declined slightly from 109 in the preceding month.



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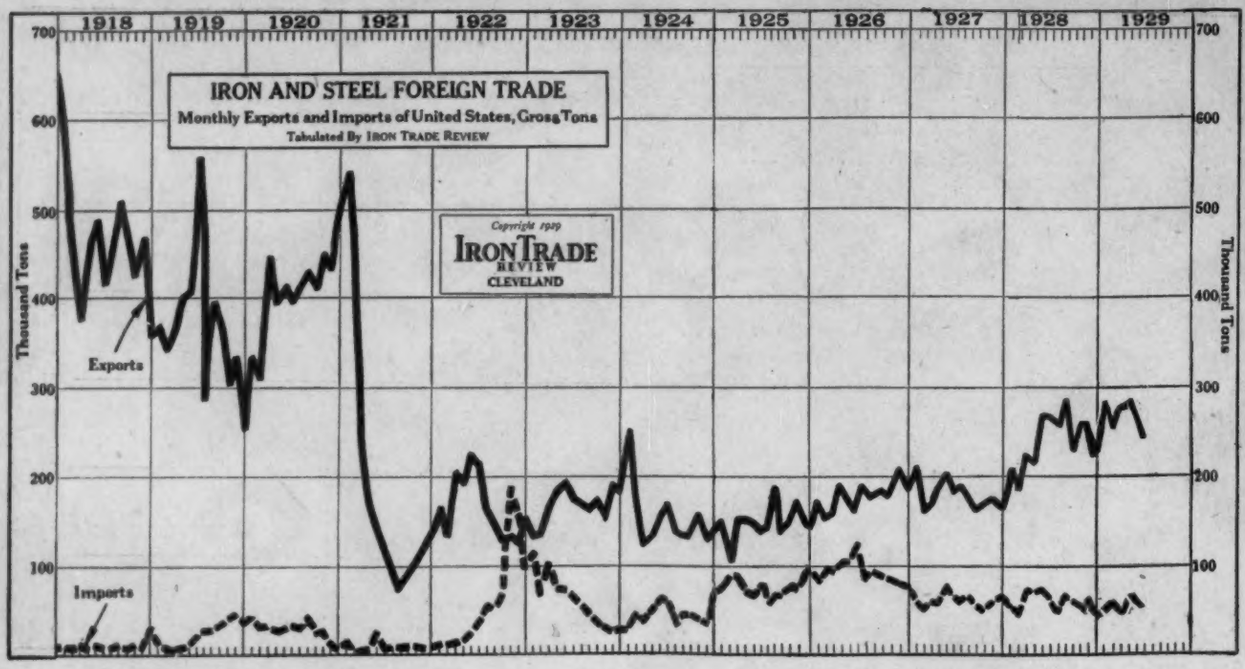
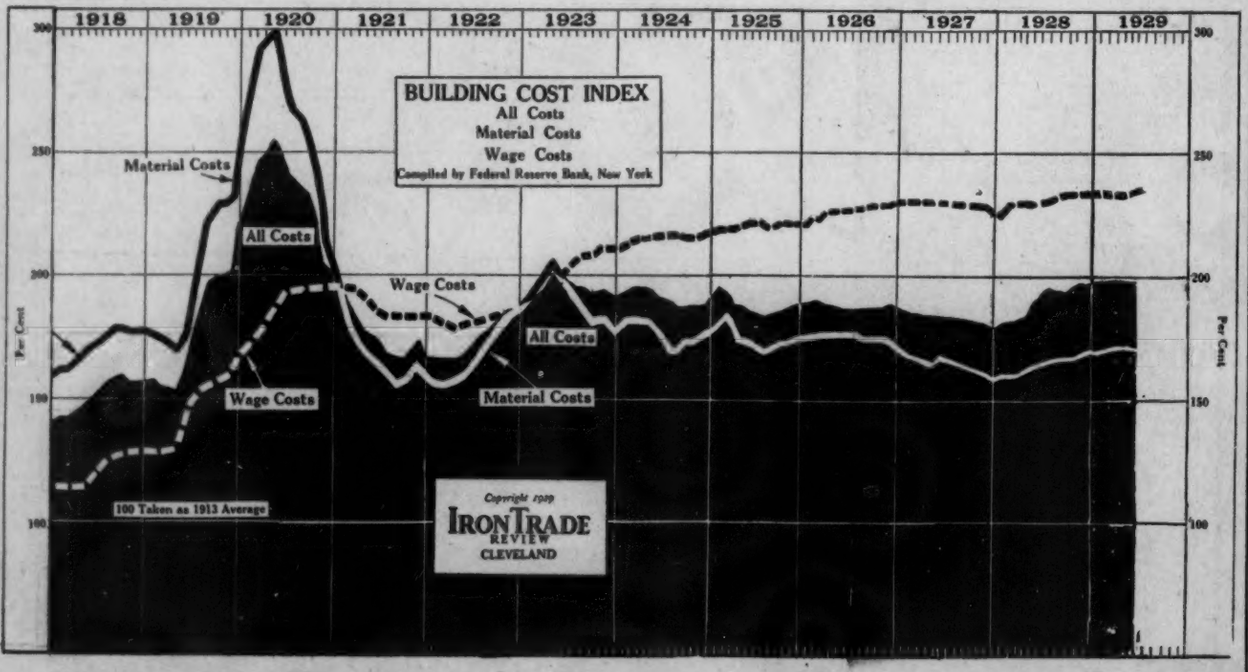


Steel Foreign Trade

EXPORTS of iron and steel products declined rather sharply during June. The total for the month was 247,811 tons, compared with 261,516 tons in May and 262,052 tons in June, 1928. For the first six months exports were 1,591,839 tons, compared with 1,357,362 tons in the first half of 1928. Imports of 63,635 tons in June compared with 74,272 tons in May and 65,819 tons in June, 1928. The first half imports of 357,845 tons compared with 393,728 tons reported in the first six months of 1928.

Building Cost Index

ALMOST significant change in the cost of building during June was a further increase in wages of construction labor. The index now stands at 235, a new high peak for all time, according to the index computed by the federal reserve bank of New York. One month before the wage level was at an index of 234. Offsetting the rise in wages was a small decrease in material prices. The index for material now stands at 166, compared with 167 one month before. The index of all building costs remains unchanged.



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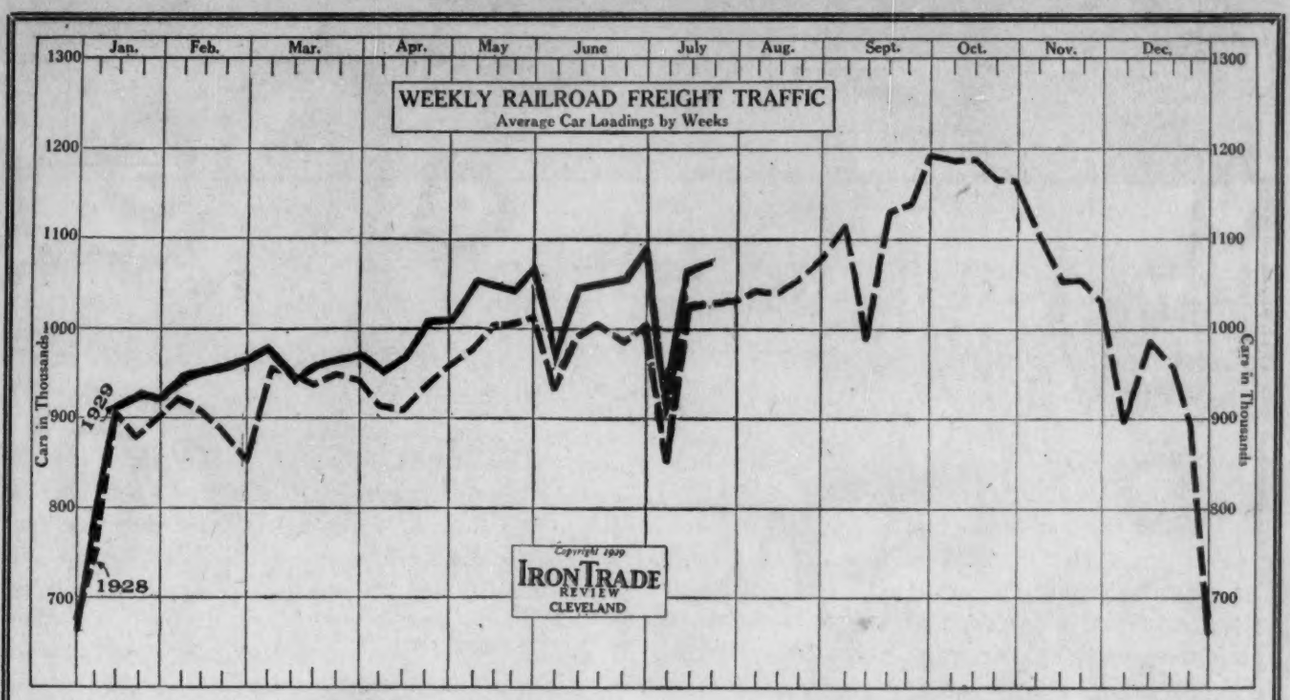
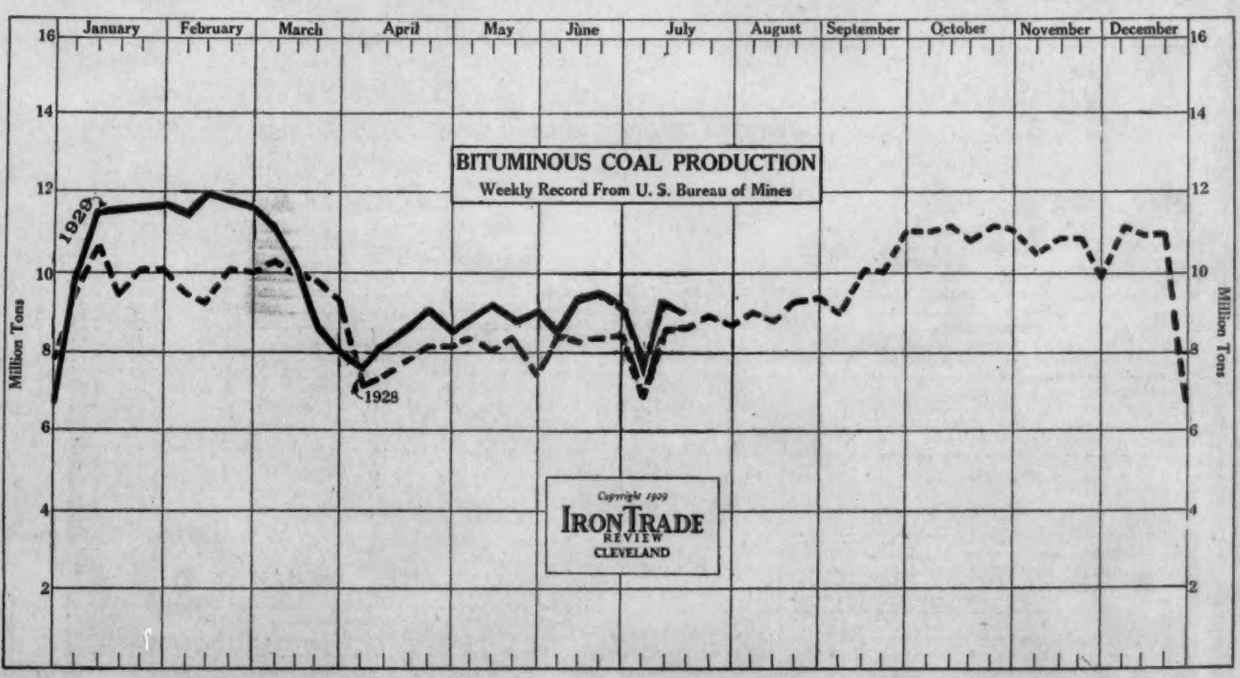


Railroad Freight Traffic

RAILROADS of the country continue to move unprecedented volumes of traffic for this time of year. Revenue freight car loadings in the week ended July 20 greatly increased the lead for the year over the corresponding period of 1928 and reached the second highest point of 1929. Total loadings for the period were 1,078,695 cars. This compares with 1,064,632 cars for the preceding week and with 1,033,843 cars for the corresponding week of 1928. Compared with one week before there was a gain of 14,063.

Bituminous Coal Production

FOLLOWING the Independence day slump in production, soft coal mine output has rebounded to the previous level of over 9,000,000 tons weekly. During the week ended July 20 production was estimated at 9,198,000 tons, compared with 9,432,000 tons one week before and 7,414,000 tons in the week ended July 6. In the third week of July, 1928, production was 8,642,000 tons. For the current year to date output of soft coal stands at 279,250,000 tons, compared with 256,571,000 tons one year ago.



July Iron Rate Is High for Month

Seven-Month Production Also Record—Steel Bookings and Mill Rates Easing Gently—Nail and Some Sheet Prices Off—Ore Shipments July Top

PIG iron was produced in July on a daily basis of 122,016 gross tons, 1½ per cent below the 123,837 tons of June but nearly 25 per cent greater than the 99,120-ton rate of last July. For July, last month's rate was a record; it was, in fact, within 3 per cent of the best month in the history of the pig iron industry—May, 1929.

Production Far Ahead of 1928

Due to the longer month, the July total of 3,782,511 tons was slightly larger than the June production of 3,715,104 tons. In July, 1928, only 3,072,711 tons was made. Output for the year through July stands at 25,420,048 tons, a new seven-month record. In the first seven months of 1928 production was 21,583,174 tons.

July statistics on pig iron not only denote the unusual strength of the industry for midsummer but they also afford a measure of the recession from the peak of the first half year. June and July successively have developed slight losses in production, the decline being from 125,753 tons in May to 122,016 tons in July.

At the close of July 217 blast furnace stacks were active, compared with 220 at the end of June, the first half high. In July for the first time since last November more stacks went out than in. August promises to be more unsettling, as two stacks already have been dropped and more are scheduled. Last August only 183 stacks were blowing. Thus, it appears the easing in pig iron has been mild and last year's activity still is topped by a wide margin.

Automobile Steel Demand at Summer Low

For steel, forthcoming July statistics will reveal similar strength. In both new business and production the tendency the past week has been slightly downward, but considering the season the situation is most favorable. August is eliciting the smallest automobile steel specifications of the year, freight car construction has eased off and implement makers are not ready to begin their fall campaigns. On the other hand, building holds remarkably steady and the requirements of the general manufacturing trade, while small

Comparative Prices of Iron, Steel and Coke

Representative Market Figures for This Week, Last Month, Three Months and One Year Ago

	Aug. 7, 1929	July 1929	May 1929	August 1928
PIG IRON				
Bessemer, del. Pittsburgh	$20.76	20.76	20.56	18.76
Basic, valley	18.50	18.50	18.30	16.00
Basic, eastern, del. eastern Pa.	19.85	19.85	20.50	19.00
No. 2 foundry, del. Pittsburgh	19.76	19.76	20.16	18.26
No. 2 foundry, Chicago	20.00	20.00	20.00	17.60
*Southern No. 2, Birmingham	14.00	14.40	15.50	15.65
**No. 2X, Virginia furnace	20.00	20.00	20.75	20.50
**No. 2X, Eastern del. Philadelphia	22.26	22.76	22.76	20.76
Malleable, valley	19.00	19.00	18.80	17.00
Malleable, Chicago	20.00	20.00	20.00	17.60
Lake Superior charcoal, del. Chicago	27.04	27.04	27.04	27.04
†Gray forge, del. Pittsburgh	19.13	19.13	19.26	18.01
Ferromanganese, del. Pittsburgh	109.79	109.79	109.79	109.79

*1.75 to 2.25 silicon. **2.25 to 2.75 silicon.
†Now based on Pitts. dist. fur. price; formerly on Valley base.

COKE				
Connellsville furnace, ovens	2.75	2.75	2.75	2.75
Connellsville, foundry, ovens	3.75	3.75	3.75	3.75
SEMIFINISHED MATERIAL				
Sheet bars, open-hearth, Youngstown	35.00	35.00	36.00	33.00
Sheet bars, open-hearth, Pittsburgh	35.00	35.00	36.00	32.20
Billets, open-hearth, Pittsburgh	35.00	35.00	36.00	32.00
Wire rods, Pittsburgh	42.00	42.00	42.00	42.00

	Aug. 7, 1929	July 1929	May 1929	August 1928
FINISHED MATERIAL				
Steel bars, Pittsburgh	1.95	1.95	1.95	1.85
Steel bars, Chicago	2.05	2.05	2.05	2.00
Steel bars, Philadelphia	2.27	2.27	2.27	2.17
Iron bars, Chicago	2.05	2.05	2.05	2.00
Shapes, Pittsburgh	1.95	1.95	1.95	1.85
Shapes, Philadelphia	2.06	2.06	2.06	2.01
Shapes, Chicago	2.05	2.05	2.05	2.00
Tank plates, Pittsburgh	1.95	1.95	1.95	1.85
Tank plates, Philadelphia	2.15	2.15	2.15	2.10
Tank plates, Chicago	2.05	2.05	2.05	2.00
Sheets, black, No. 24, Pittsburgh	2.85	2.85	2.95	2.65
*Sheets, blue anl., No. 13, Pittsburgh	2.35	2.35	2.20	2.00
Sheets, gal., No. 24, Pittsburgh	3.50	3.60	3.70	3.50
Sheets, black, No. 24, Chicago	3.10	3.10	3.10	2.80
*Sheets, blue anl., No. 13, Chicago	2.50	2.50	2.35	2.15
Sheets, galvanized, No. 24, Chicago	3.85	3.85	3.85	3.65
**Plain wire, Pittsburgh	2.50	2.50	2.50	2.40
**Wire nails, Pittsburgh	2.65	2.65	2.65	2.55
Tin plate, per base box, Pittsburgh	5.35	5.35	5.35	5.25

*Comparisons for April, 1929, and July, 1928, are with old blue annealed base, No. 10. **To large jobbers.

SCRAP				
Heavy melting steel, Pittsburgh	18.75	18.45	17.85	15.00
Heavy melting steel, eastern Pa.	16.50	16.50	16.25	12.75
Heavy melting steel, Chicago	14.75	14.75	15.45	12.65
No. 1 wrought, eastern Pa.	16.25	16.25	16.25	14.80
No. 1 wrought, Chicago	15.00	14.85	16.40	12.40
Rails for rolling, Chicago	17.50	17.50	17.50	16.00

Current Prices for Rolled Steel Products

PRICES IN CENTS PER POUND

STEEL PLATES

Pittsburgh, base	1.95c
Philadelphia, del.	2.15c to 2.25c
New York, del.	2.225c to 2.325c
Boston, del.	2.265c to 2.415c
Chicago, base	2.05c to 2.15c
Cleveland, delivered	2.14c
Lackawanna, N. Y., base	2.05c to 2.15c
Birmingham, base	2.10c to 2.20c
Coatesville, Pa., base	2.00c to 2.10c
Pacific Coast, c.i.f.	2.35c
St. Louis, del.	2.27c
Detroit, del.	2.19c to 2.24c

STRUCTURAL SHAPES

Pittsburgh, base	1.90c to 1.95c
Philadelphia, del.	2.01c to 2.11c
New York, del.	2.195c to 2.245c
Boston, del.	2.265c to 2.415c
Chicago, base	2.05c to 2.15c
Cleveland, delivered	2.09c to 2.14c
Lackawanna, N. Y.	2.05c to 2.15c
Birmingham, base	2.10c to 2.20c
Bethlehem, Pa., base	2.00c to 2.10c
Pacific Coast, c.i.f.	2.35c
Detroit, del.	2.19c to 2.24c

BARS

SOFT STEEL

Pittsburgh, base	1.95c
Chicago, base	2.05c to 2.15c
Birmingham, base	2.10c to 2.20c
Lackawanna, N. Y., base	2.05c to 2.15c
Pacific Coast, c.i.f.	2.35c
Cleveland, base, local mills	1.90c to 1.95c
Cleveland, del., outside mills	1.95c
Philadelphia, del.	2.27c to 2.32c
New York, delivered	2.29c to 2.34c
Boston, delivered	2.265c to 2.415c
Detroit, del.	2.19c to 2.24c
Pittsburgh, cold finishing	2.05c
Pittsburgh, forging quality	2.15c

RAIL STEEL

Chicago Heights	1.95c
Eastern mills	1.85c to 1.95c

IRON

Chicago, base	2.05c to 2.15c
New York, delivered	2.19c to 2.24c
Philadelphia, delivered	2.17c to 2.22c
Pittsburgh, refined	2.75c to 4.25c

REINFORCING

Pittsburgh, billet, cut lengths	2.30c
Stock lengths from mill	2.05c
Chicago, billet	2.30c
Chicago, rail steel	1.95c to 2.05c
Chicago, rail steel, rond and bridge work	1.95c to 2.05c
Philadelphia, cut lengths	2.57c to 2.62c

SHEETS

SHEET MILL BLACK, NO. 24

Pittsburgh, base	2.85c
Philadelphia, delivered	3.17c to 3.27c
Gary, Indiana Harbor	3.05c
Chicago, delivered	3.10c
Birmingham, base	3.10c
St. Louis, del.	3.27c

TIN MILL BLACK, NO. 28

Pittsburgh, base	3.00c
Gary, base	3.10c

GALVANIZED, NO. 24

Pittsburgh, base	3.50c to 3.60c
Philadelphia, delivered	3.82c to 4.02c
Gary, Indiana Harbor	3.80c
Chicago, delivered	3.85c
Birmingham, base	3.70c
St. Louis, del.	4.02c

BLUE ANNEALED
Sheets, No. 13

Pittsburgh, base	2.35c
Chicago district mills	2.45c
Chicago, delivered	2.50c
St. Louis, delivered	2.67c
Philadelphia, delivered	2.67c
Birmingham	2.50c

Plates, No. 9 and 10

Pittsburgh, base	2.10c to 2.20c
Chicago district mills	2.30c
Chicago, delivered	2.35c
Philadelphia, delivered	2.52c
St. Louis, delivered	2.52c
Birmingham	2.35c

AUTOMOMILE, NO. 20

Pittsburgh, base	4.10c
Detroit, delivered	4.39c

FURNITURE

Pittsburgh	4.20c

(Turn to the following page)

individually, are bulking large in the aggregate.

Approximately 2800 freight and 540 passenger cars are actively pending, including a Union Pacific inquiry for 500 refrigerator cars. Rail mills, although well past the zenith of their spring runs, seem to have settled down to a 75 per cent gait for the remainder of the year. The Pennsylvania will close Aug. 18 on 28,750 tons of steel and 18,000 car wheels.

The past week's specifications for steel bars at Chicago have set a new summer record. The delivery situation, however, at Chicago as well as at Pittsburgh is easier. Plate mills have not yet benefited directly from recent heavy pipe line orders, and more lines are maturing. Western tank work placed at Chicago requires 7000 tons of plates. Steel corporation subsidiaries will roll 10,000 tons, chiefly plates, for two lake freighters ordered by the corporation's lake subsidiary. Subway and bridge work lead structural activity. Shapes, like plates and bars, are 1.95c, Pittsburgh.

Sheet Mills Lean on Backlogs

Hot weather and a lack of sheet bars continue to hamper Chicago district sheet mills. At Pittsburgh and Youngstown sheet orders have declined noticeably, but the mills have backlogs to carry them through August at substantial rates. Galvanized and black sheet prices are easy in localities. August tin plate production will be sufficient to insure a new eight-month output record. The vitality of pig iron is surprising for August. At New York 20,000 tons has been closed. Inquiry at Buffalo totals 10,000 tons. Shipments at Chicago are exceeding July. Some Pittsburgh blast furnaces are shipping more than they are making. Reduced rates on southern iron to North Atlantic points, of 76 cents to $1.16 per ton, are now effective. Southern iron continues as low as $13.50, Birmingham, in northern markets.

Scrap Iron and Steel Prices Strong

Beehive coke prices have survived shading in the East and recent sales of standard furnace fuel have been at $2.75 in the Pittsburgh district. The beehive surplus, however, is increasing. Iron and steel scrap continues on strong ground. Consumers generally are deferring the issue but dealers are holding prices at high levels.

Steel corporation subsidiaries are operating this week at 99 to 100 per cent, or just under practical capacity, a fractional loss from last week. Independent producers continue at about 91 to 92 per cent, and the entire industry at 95.

July movement of iron ore on the Great Lakes, at 10,670,882 tons, set a new July record. The lake subsidiary of the Steel corporation, after launching three 600-foot ore carriers in as many weeks, has ordered two more for delivery in 1930.

Composite Market Average

Based on Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Structural Shapes, Black, Galvanized and Blue Annealed Sheets Tin Plate, Wire Nails and Black Pipe

This week (August 7, 1929)	$36.60
Last week (July 31, 1929)	36.68
One month ago (July, 1929)	36.71
Three months ago (May, 1929)	37.10
One year ago (August, 1928)	34.96
Ten years ago (August, 1919)	48.27
Fifteen years ago (August, 1914)	22.72

Reflecting weakness in sheet prices, IRON TRADE REVIEW composite of 14 leading iron and steel products is off 8 cents this week, to $36.60, its lowest since the first week of April. July average was $36.71.

Current Rolled Steel Prices

PRICES IN CENTS PER POUND UNLESS OTHERWISE INDICATED

Tubular Products Quoted On Last Editorial Page—See Preceding Page For Other Products

HOOPS, BANDS, STRIPS

Hot strip, to 6-in., Pitts.	2.00c
Hot strip 6⅛ to 24-in., Pitts.	1.90c
Hot strip, bands 6 in. and under, Chicago	2.10c to 2.30c
Do, 6⅛ to 24 in.	2.00c to 2.10c
Cooperage stock, Pittsburgh	2.20c
Do, Chicago	2.30c
Cold rolled strip, hard coils, 16 inches and under by 0.100-inch and heavier, base Pitts., Cleve. (3 ton and over)	2.75c to 2.85c
Worcester, Mass. (3 tons and over)	2.90c to 3.00c

ALLOY STEEL

Hot Rolled
F.o.b. Mills
Alloy Quality Bar Base is 2.65c

S.A.E. Series Number	Alloy differential	Net 100 lb. bars
2000	0.25	$2.90
2100	0.55	3.20
2300	1.50	4.15
2500	2.25	4.90
3100	0.55	3.20
3200	1.35	4.00
3300	3.80	6.45
3400	3.20	5.85
4100 0.15-0.25 Mo.	0.50	3.15
4100 0.25-0.40 Mo.	0.70	3.35
4600 0.20-0.30 Mo. 1.25-1.75 Ni.	1.05	3.70
5100 0.60-0.90 Cr.	0.35	3.00
5100 0.80-1.10 Cr.	0.45	3.10
5100 Chrome Spring	0.20	2.85
6100 Bars	1.20	3.85
6100 Spring Steel	0.95	3.60
Chrome Nickel Vanadium	1.50	4.15
Carbon Vanadium	0.95	3.60
9250 (flats)	0.25	2.90
9250 (rounds squares)	0.50	3.15

Hot rolled alloy billets 4 x 4-inch and over take same price per gross ton as same specification alloys bars per net ton. Sizes under 4 x 4 to 2½ in. x 2½ in. inclusive sold on bar basis plus steel bar card extras for size. Sizes under 2½ in. x 2½ in. take bar price on net ton basis.

COLD FINISHED STEEL

Cold finished steel bars drawn or rolled, Pitts., Chi., c.l.	2.30c
Do, del. Detroit	2.575c
Shafting (turned, polished) Pittsburgh	2.30c
Shafting (turned, ground) mill (Depending on size, 1 3/16 to 7-inch)	2.65c to 3.10c
Cold finished steel bars, Cleve.	2.35c

WIRE PRODUCTS

F.o.b. Pittsburgh, Cleveland, Ironton base

(Per Pound)	Dealer trade	Large jobbers
Bright plain wire, 6 to 9 gage	2.60c	2.50c
Annealed field wire	2.75c	2.65c
Galvanized wire	3.20c	3.10c
Barbed wire, galvanized	3.40c	3.30c
(Per 100-pound keg)		
Wire nails	$2.65 to 2.75	$2.55 to 2.65
Galvanized nails	4.65 to 4.75	4.55 to 4.65
Polished staples	3.10 to 3.20	3.00 to 3.10
Galvanized staples	3.35 to 3.45	3.25 to 3.35
Cement coated nails	2.65 to 2.75	2.55 to 2.65
Manuf. wire, del. Detroit		2.635c
Wire nails, del. Detroit		$2.785 to $2.885

Joliet, DeKalb and Waukegan, Ill., Anderson, Ind., and Chicago prices $1 per ton over Pittsburgh-Cleveland-Ironton base on products made there; Duluth $2 higher; Worcester, Mass., Fairfield, Ala., $3 higher.

Woven wire fencing, retailers, Pittsburgh-Cleveland, net ton $65.

Anderson, Ind., $1 higher, Chicago $2 higher, Duluth, Birmingham $3 higher.

CUT NAILS, CHAIN PILING

Cut nails, l.c.l., f.o.b. mills	2.70c to 2.75c
Cut nails, l.c.l. f.o.b. mills	2.80c to 2.85c
Chain, 1-in., proof coil, Pitts.	6.00c
Sheet piling, base, Pittsburgh	2.25c

CAST IRON WATER PIPE

Prices per net ton
Class B pipe

Six-inch and over, Birming'm	$37.00 to 38.00
Four-inch, Birmingham	41.00 to 42.00
Four-inch, Chicago	49.20 to 50.20
Six-inch to 24-inch, Chicago	45.20 to 46.20
Six-inch and over, New York	37.50 to 38.50
Four-inch, New York	40.00 to 41.00
Standard fittings, Bir. base	$100.00

Six to 24-inch, base; over 24-inch, plus $20; 4-inch, plus $10; 3-inch, plus $20; gas pipe fittings, $5 higher.

Class A pipe is $4 higher than Class B.

TIN PLATE TERNE PLATE

Prices per 100-pound box Pittsburgh

*Tin plate, coke base	$5.35

Gary, Ind., base 10 cents higher.

Long ternes, primes, No. 24 ..... 4.00c to 4.10c

*Price subject to quantity differentials.

WASHERS

Wrought, c.l., Pitts. dist.	$6.50 to 6.75 off
Wrought, c.l., Chicago dist.	$6.70 to 26.90 off
Lock: to dealers	85-5 off
Lock: to consumers	85 off

RAILS, TRACK MATERIAL

Standard bessemer rails, mill	$43.00
Standard open-h'th rails, mill	$43.00
Relay rails, Pitts., 60 to 90 lb.	$24.00 to 29.00
Light rails, 25 to 45, mill	$36.00
Angle bars, Chicago base	2.75c
Spikes, railroad, Pittsburgh	2.80c
Spikes, small railroad, 7/16-inch and smaller, Pitts.	2.80c
Spikes, boat and barge, Pitts.	3.00c
Spikes, railroad, Chicago	2.80c
Track bolts, Pitts., steam roads	3.80c
Track bolts, Pitts., stand. jobbers	70 off list
Track bolts, Chicago	3.80c
Tie plates, Chicago, Pitts.	$43.00

BOLTS AND NUTS

Birmingham and Chicago

Discounts are for legitimate jobbing or large consuming trade purchasing in full-case lots, apply to lists of April 1, 1927.

Small lots are 55 to 60 per cent off.

CARRIAGE BOLTS

All sizes, cut thread	60 to 70 off
Rolled thread ⅜ x 6 and smaller take 10 per cent lower list.	
Eagle list	60 to 70 off

MACHINE BOLTS

All sizes, cut thread	60 to 70 off
Rolled thread ⅜ x 6 and smaller take 10 per cent lower list.	
Lag Screws	60 to 70 off
Plow bolts, Nos. 1-2-3-7 heads	60 to 70 off
Tap bolts	60 to 70 off
Blank bolts	60 to 70 off
Stud bolts without nuts	60 to 70 off
Stove bolts, 75, 20, 10 and 5 off in pkgs., 75, 20, 10 and 5 with 2½ off in bulk.	
Tire bolts	60-5 off

Nuts

Semifinished	60 to 70 off

HEXAGON CAP SCREWS

Milled	80-10-5 off
Upset 1 in. diam. and smaller	5 off

SQUARE HEAD SET SCREWS

Milled	80-5 off
Upset 1 in. diam. and smaller	80-10-5 off

RIVETS

Struc., c.l., Pitts-Cleve.	3.10c
Structural, c.l. Chicago	3.20c
**7/16-inch and smaller, Pitts.	70 and 10 off
Chi., Cleve.	70 to 70 and 10 off

**Some makers quoting 70 off with freight allowed on 300 pounds or more.

Raw Materials and Semifinished Products

SEMIFINISHED MATERIAL

Prices Per Gross Ton

BILLETS AND BLOOMS

4 x 4-inch base

Pittsburgh, open-hearth	$35.00
Pittsburgh, bessemer	35.00
Youngstown	35.00
Cleveland	35.00
Philadelphia	40.30
Chicago	37.00
Forging, Chicago	42.00
Forging, Pittsburgh	40.00 to 41.00
Forging, Philadelphia	45.30

SHEET BARS

Pittsburgh	$35.00
Youngstown	35.00
Cleveland	35.00
Chicago	37.00

SLABS

Pitts., Young.	$35.00
Cleveland	35.00

WIRE RODS

Pittsburgh, Cleveland	$42.00
Chicago	43.00

SKELP

All grades, Pittsburgh	1.90c to 1.95c

IRON ORE

LAKE SUPERIOR ORE

Per Gross Ton, Lower Lake Ports

Old range bessemer, 51½%	$4.80
Mesabi bessemer, 51½%	4.65
Old range nonbessemer, 51½%	4.65
Mesabi nonbessemer, 51½%	4.50
High phosphorus, 51½%	4.40

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic, 56-63%	8.00
Copper free low phosphorus 58 to 65 per cent	nominal

FOREIGN ORE

Cents per units, alongside docks Atlantic ports

Foreign manganiferous ore, 45-55% iron, 6-8% manganese	11.00 to 11.50
North African low phosphorus	12.00 to 12.50
Swedish foundry or basic, 65%, nominal at	9.00 to 10.00
Spanish and North African basic, 50 to 60 per cent	11.50 to 12.00
Newfoundland foundry, 55%	nominal
Tungsten future, short ton unit, duty paid	16.00 to 16.50

MANGANESE ORE

Prices do not include duty of 1 cent per pound of metallic manganese contained.

Brazilian	34 to 36 cents
Indian	34 to 36 cents
Caucasion, (53-55 per cent)	36 cents

FLOURSPAR

85 and 5 per cent grade

Washed gravel, Kentucky and Illinois mines, per net ton	$18.00
Washed gravel, import duty paid east. tide., gross ton	$20.15

REFRACTORIES

FIRE CLAY BRICK

Per 1000 f.o.b. works

First Quality

Pennsylvania	$43.00 to 46.00
Ohio	43.00 to 46.00
Illinois	43.00 to 46.00
Kentucky	43.00 to 46.00
Missouri	43.00 to 46.00
Maryland	43.00 to 46.00
Georgia and Alabama	40.00 to 45.00

Second Quality

Pennsylvania	35.00 to 38.00
Ohio	35.00 to 38.00
Illinois	35.00 to 38.00
Kentucky	35.00 to 38.00
Missouri	35.00 to 38.00
Maryland	35.00 to 38.00
Georgia and Alabama	30.00 to 35.00

SILICA BRICK

Pennsylvania	43.00
Joliet, Ill., East Chicago, Ind.	52.00
Birmingham	50.00 to 51.00

MAGNESITE BRICK

Per Net Ton

9 x 4½ x 2½	65.00

MAGNESITE

Net Ton Chester, Pa., and Baltimore base

Dead-burned grain magnesite	40.00

CHROME BRICK

Net Ton Chester, Pa., and Baltimore base

9 x 4½ x 2½	45.00

Pig Iron

Market Fairly Active, and Shipments Heavy —Large Sales in Eastern Territory—Offer Alabama in Competitive Districts at $13.50

MIDSUMMER demand for pig iron is satisfactory from the viewpoint of the majority of furnace interests, the only weak spot in the situation being in southern iron which now is offered at $13.50, base, Birmingham, in competitive territory. While some merchant furnaces in Alabama are to be put out, indications point to still sharper competition before the turning point. Lower southern freight rates into eastern territory, now in effect, are providing a larger outlet. The Great Lakes and Middle Western districts are enjoying an extraordinary period of high shipments and stable prices. Furnace interests at Cleveland shipped approximately as much iron in July as in June. Chicago district furnaces expect August will surpass July.

PITTSBURGH, Aug. 6.—The pig iron market is in a favorable position from the standpoint of producers, despite lack of briskness in new buying. Shipments are seasonally heavy and in several instances exceed production. Incoming business continues mainly in small lots with occasional sizable orders. A fair tonnage also is being placed with regular sources of supply without general inquiry. Buying is partly on a hand-to-mouth basis, with some requests for rush shipment. Producers are not adding materially to backlogs, although shipments against large contracts placed some time ago will extend into September, and sellers are booked on most grades through August. Sustained activity in steelmaking and at steelworks blast furnaces is an important factor in the unusual stability of pig iron prices over the past three months. Current quotations are holding at $18.50, valley for basic and No. 2 foundry, and $19 for bessemer and malleable.

Average pig iron prices for July were unchanged from June at $19 for bessemer and $18.50 for basic, according to W. P. Snyder & Co. These compare with $17 and $16, respectively, for July, 1928.

Boston, Aug. 6.—Pig iron prices appear stronger, Buffalo furnaces holding to $18, base, for delivery in this district. About 3000 tons of iron was sold in the past week, of which Mystic Iron Works received the major part. Included in sales was 1000 tons of low phosphorous iron to a Massachusetts machinery manufacturer. Furnaces east of Buffalo are reported to be getting better prices for iron than a month ago.

New York, Aug. 6.—Pig iron sales have been the heaviest in some time, about 20,000 tons being booked in the past week. Orders placed include 5000 tons for a Connecticut melter and at least 4000 tons for a radiator manufacturer. Reports that American Radiator Co. closed for 10,000 tons for its western plants have been denied by that company, this tonnage still pending. Prices are unchanged, with $17.50, Buffalo, appearing the firm minimum on attractive tonnages. Inquiry is light.

Buffalo, Aug. 6.—Pig iron sales show a substantial increase. One Buffalo furnace has advanced its eastern minimum price on foundry to $18.50, while another seeks no more third quarter business. Included in 10,000 tons of new inquiry reported this week is one lot of 5000 tons of malleable for an eastern consumer.

Pig Iron Prices

Per Gross Ton

Bessemer, valley furnace	$19.00
Bessemer, del. Pittsburgh	20.76
Basic, valley furnace	18.50
Basic, Pitts. dist. fur.	19.00
*Basic, del. Pittsburgh	19.63 to 20.13
Basic, Buffalo furnace	18.50
Basic, del. eastern Pa.	19.85 to 20.25
Malleable, valley furnace	19.00
Malleable, Pitts. dist. fur.	19.50
*Malleable, del. Pittsburgh	20.13 to 20.63
Malleable, Cleve. fur. for local del.	19.00
Malleable, Chicago furnace	20.00
Malleable, Buffalo furnace	20.00
Malleable, del. eastern Pa.	21.76 to 22.90
Malleable, Granite City fur.	20.50
No. 1 foundry, Chicago furnace	20.50
No. 1X, Eastern del., Phila.	22.76
No. 1X, Buffalo furnace	21.00
No. 2 foundry, valley furnace	18.50
No. 2 fdy., Pitts. dist. fur.	19.00
*No. 2 foundry, del. Pittsburgh	18.63 to 20.13
No. 2 plain, Buffalo furnace	19.50
No. 2 foundry, Chicago furnace	20.00
No. 2 fdy. Cleve. fur. for local del.	19.00
No. 2 fdy., Granite City fur.	20.00
No. 2 plain, del., Phila	21.76
No. 2 plain, Virginia furnace	19.50
No. 2 plain, Buffalo, del. Boston	22.41 to 22.91
No. 2 plain, N. J., tidewater	20.78 to 21.78
No. 2 Alabama, Bir. base	13.50 to 14.50
No. 2 Tenn., Birmingham base	14.00 to 14.50
No. 2 Tenn., del. Cincinnati	18.19 to 18.69
No. 2 Alabama, del., Cincinnati	17.69 to 18.19
No. 2 Alabama, del., Cleveland	20.51 to 21.01
No. 2 Alabama, del., Chicago	20.01 to 21.01
No. 2 Alabama, del. St. Louis	18.42
No. 2 Ala., Phila., dock dely.	19.75 to 21.01
No. 2 Ala., Balt., dock dely.	19.50 to 20.76
No. 2 Ala., Boston, dock dely.	20.25 to 21.41
No. 2X, east, N. J., tidewater	21.28 to 22.28
No. 2X, eastern, del. Phila.	22.26
No. 2X, foundry, Buffalo furnace	20.00
No. 2X, Buffalo, del. Boston	22.91 to 23.41
No. 2X, Virginia furnace	19.50 to 20.00
Gray forge, Pitts. dist. fur.	18.50
*Gray forge, del. Pittsburgh	19.13 to 19.63
Low phos., standard, valley	27.00
Low phos., standard, Phila.	24.26 to 24.76
Low phos., copper bearing fur.	23.00 to 23.50
Charcoal, Superior, del., Chicago	27.04

*Freight from Pittsburgh district furnace to points in Pittsburgh district 63c, 76c and $1.13 per ton.

CANADIAN PRICES

No. 1 foundry, del. Toronto	$24.60
No. 1, foundry, del. Montreal	26.00
No. 2 foundry, del. Toronto	24.10
No. 2 foundry, del. Montreal	25.50
Malleable, del. Toronto	24.60
Malleable, del. Montreal	26.00
Basic, del. Montreal	24.50

Silvery iron Jackson county, O., furnaces, in per cents: 5—$22; 6—$23; 7—$24; 8—$25; 9—$26; 10—$28; 11—$30; 12—$32; 13—$34.

Bessemer ferrosilicon, Jackson county, O., furnaces, in per cents: 10—$30; 11—$32; 12—$34; 13—$36; 14—$38; 15—$41; 16—$43.50; 17—$46.50.

Furnaces are shipping all their production.

Youngstown, O., Aug. 6.—Pig iron shipments from merchant furnaces in this district continue to be made steadily. New business appears confined to small lots of foundry, basic and bessemer. Republic Iron & Steel Co. has blown out its No. 2 Haselton stack for relining. No. 2 foundry and basic hold at $18.50, valley, and bessemer and malleable at $19.

Cleveland, Aug. 6.—Shipments of pig iron in July by furnace interests with headquarters in Cleveland were practically the same as in June, due to an unexpected increase in demand for iron late in the month. A large merchant furnace interest shipped more iron in July than in June, while another merchant furnace moved slightly less than in June. The situation for sellers in northern Ohio, Indiana and Michigan continues strong, and the outlook is good. The furnace interests here booked 25,000 tons in the past week. Slightly more than in the week preceding. Inquiries pending total approximately 6000 tons. Lake furnace prices are unchanged. Cleveland producers quote nominally $18.50, base, for outside shipment, and $19, base, for local consumption, though they are practically booked solid for third quarter.

Jackson county silveries and bessemer ferrosilicon irons have been reduced $1 a ton. Toledo Furnace Co.'s B stack is being put out for relining, while A continues in blast.

Cincinnati, Aug. 6.—Sales of pig iron have declined and the market is quiet. Buyers are placing orders for iron to be used in the immediate future. Prices are steady.

St. Louis, Aug. 6.—Price uncertainty is the feature of the pig iron situation. Southern basic iron has been sold here at the lowest prices in years, and it is reported certain makers in that area are prepared to sell still lower. Southern foundry grades have yielded further in the past several days, and offerings are plentiful at $14, base, furnace, or $18.42, delivered here. A steel plant in this district which recently purchased 2000 tons of southern basic is reported to have doubled that order. Sales of northern basic are reported at relatively higher figures than the southern product, the differential being due to difference in phosphorus. The leading local producer

(*Concluded on Page* 357)

The Market Section

Coke

Market Is Fairly Steady, with Increase in Beehive Merchant Production a Feature

PRODUCTION of merchant beehive coke in the Connellsville district has been increased slightly to the highest level since the middle of June, and while surplus is larger prices for nearby shipment are stable. For shipment to eastern consumers standard furnace fuel is $2.65 to $2.75. Shipments on contracts continue heavy. Foundries are easing up in specifications.

Pittsburgh, Aug. 6.—Beehive furnace coke shows the usual midsummer quietness, but the market gives evidence of a strong undertone. Recent sales of standard fuel brought $2.75, unchanged from the price in effect two months ago. Other than standard grades can be bought for less. The fact some large producers went through July with little tonnage available and production held close to actual requirements promoted a stable market. Surplus coke is increasing but it is not of a distress character. Foundry coke prices are steady, but the market continues dull with consumption low. Merchant coke production is up slightly to the highest level since the middle of June, though well below the spring rate.

Beehive coke production in the Connellsville district in the week ended July 27 totaled 103,580 tons, compared with 101,640 tons the preceding week and 27,330 tons during the corresponding week of 1928.

New York, Aug. 6.—Beehive furnace coke continues the soft spot in the local market, weakness being attributed to a backing up of specifications against contracts. Standard grades for spot are available at $2.65 to $2.75, Connellsville, although at the inside price for delivery only before Sept. 1. Foundry coke is $3.75 to $4.85, Connellsville, and by-product foundry coke $9 to $9.40, delivered, Newark, N. J.; $11, delivered New England points and $9, delivered, Philadelphia.

Cincinnati, Aug. 6.—Specifications for by-product foundry coke during July were at a higher level than at any time since March. So far this month foundries are easing up on their requirements and indications are that specifications will not be as large as during July. Prices continue firm.

St. Louis, Aug. 6.—Typical summer conditions prevail in the coke market. Shipments of metallurgical grades have declined further, though the average holds up well compared with the past several years. Some new buying is reported, but the volume is not impressive. Prices are steady.

Birmingham, Ala., Aug. 6.—Foundry coke is moving steadily from the Birmingham district to consumers in the Middle West. No curtailment of production is indicated. Foundry coke continues $5, base, Birmingham.

Coke Prices

Prices per Net Ton

Beehive Ovens	
Connellsville furnace	$2.75 to 2.85
Connellsville foundry	3.75 to 4.85
New River foundry	6.00 to 6.50
Wise county foundry	4.25 to 5.00
Wise county furnace	3.50 to 4.75
By-Product Foundry	
Newark, N. J., del.	$9.00 to 9.40
Chicago ovens	8.00
New England del.	11.00
St. Louis del.	9.00
Birmingham, ovens	5.00
Indianapolis, del.	8.25
Ashland, Ky., ov., Connell. basis	6.50
Portsmouth, O., ov., Connell. basis	6.50
Buffalo ovens	8.75
Detroit, ovens	9.00
Philadelphia, del.	9.00

Ferroalloys

July Shipments Approximate June's—Spot Demand Is Steady

Pittsburgh, Aug. 6.—Shipments of most grades of ferroalloys are keeping pace with sustained operations in the iron and steel industry. July shipments of ferromanganese and spiegeleisen held to approximately the June volume, with most business confined to specifications against contracts. Spot demand is fairly steady for single carloads at $109.79, delivered Pittsburgh, for ferromanganese and $34 for spiegeleisen. Business in special ferroalloys continues slightly below the pace of ferromanganese and spiegeleisen.

New York, Aug. 6.—Spiegeleisen is moving well, with domestic 19 to 21 per cent manganese content firm at $34, furnace. English spiegeleisen, 26 to 28 per cent, is nominal at $36.50, duty paid, tidewater. Ferromanganese is unchanged at $105, duty paid, tidewater. Tungsten continues strong with wolframite and imported scheelite generally about $16, a short ton unit, and domestic scheelite $16.50. Prices are more or less nominal on wolframite, but October shipment of domestic ore scheelite has been sold as quoted. The various ferroalloys such as vanadium and chrome are unchanged, despite unusually large shipments, but practically all business continues to be against annual contracts.

Lamme Medal Is Awarded

Allan Bertram Field, Manchester, Eng., has been awarded the first annual Lamme medal by the American Institute of Electrical Engineers. Presentation was made during the recent summer convention of the institute at Swampscott, Mass. The Lamme medal was established by the late Benjamin G. Lamme, chief engineer, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.

Bolts, Nuts, Rivets

Specifications Definitely Smaller and Production Lags

NUT AND BOLT PRICES, PAGE 342

Pittsburgh, Aug. 6.—Specifications for bolts, nuts, and rivets show a more definite decline, with jobbers and fabricators cutting down materially on commitments. Some consumers are fairly well stocked and are disposed to order only in small lots. Operations have been reduced by some interests and now average around 65 per cent. Bolts and nuts are steady at 60 to 70 off, with large rivets 3.10c, Pittsburgh.

Cleveland, Aug. 6.—Orders for nuts, bolts and rivets were better in July than in June. New business shows an improvement over the past ten days, and makers look for larger demand in August than in July. The automobile industry has increased orders slightly.

Chicago, Aug. 6.—Unusual activity continues reflected in the volume of bolt, nut and rivet orders. Although July business was somewhat less than in June, orders placed in the past month exceeded July, 1928, by a comfortable margin. Indications point to sustained buying from agricultural implement manufacturers and tractor builders. Prices are firm, with bolts and nuts 60 to 70 off list.

Philadelphia, Aug. 6.—Bolt and nut demand is suprisingly good for this time of the year. July was one of the largest months of the year from the standpoint of volume. Prices are firm. Rivet sales are good, several of large size being noted. Rivets are firm at 3.10c, base, Pittsburgh.

Ferroalloy Prices

(In dollars, except ferrochrome)

Ferromanganese, 78 to 82 per cent, tidewater, duty paid	$105.00
Ferromanganese, del. Pittsburgh	109.79
Spiegeleisen, 19 to 21 per cent, domestic furnace, spot†	34.00
*Ferrosilicon, 50 per cent, freight allowed, carloads	83.50
*Do, less carload	88.50
Do., 75 per cent	130.00 to 150.00
Ferrochrome, 66-70 chromium, 4-6 carbon, cts. per lb. con., del.	11.00
Do., for spot delivery	11.50
Ferrotungsten, stand., lb. cont.	1.40 to 1.45
Ferrovanadium, 30-40 per cent, per lb., contained, on analysis	3.15 to 3.65
Ferro-carbon-titanium carload producer's plant, net ton	160.00
Do., one ton to carload	170.00
Ferrophosphorus, per ton, carload 17 to 19 per cent, Rockdale, Tenn., basis (18 per cent)	91.00
Ferrophosphorus, electrolytic, per ton, carload, 23-25% f.o.b. Anniston, Ala. (24 per cent)	122.50

†Quantity diff. apply on 100 tons and over.
*These prices contract, spot $5 higher.

Scrap

Strength Holds, Awaiting Buying—Some Prices Higher—Supply Is Ample

DEALERS find their position strengthening as summer wanes. Price strength continues and awaits only better demand to assert itself. Buyers are resisting, and buy only small lots for immediate melting. Volume going into consumption is unchecked, contracts supplying sufficient without much new buying.

Chicago, Aug. 6.—Reflection of the stronger dealer position in iron and steel scrap is slow to materialize in actual consumer advances. Higher prices are being paid by dealers and brokers for material for contracts, while the market continues largely in control of melters. As high as $15.75, delivered, has been paid for railroad melting steel, but as much of this goes to points outside the Chicago switching district railroad prices are less significant. Dealer trading prices for melting steel have been around $15.25 to $15.35. Buying of futures is slow, while piecemeal sales for early shipment govern consumer transactions. Cast grades show little life. Foundry operations are gaining slowly. Shipments of scrap to steelworks show little reduction from the season's peak.

Boston, Aug. 6.—There has been a tendency on the part of sellers to place a better tonnage in dealers' hands in the past week, which has, in turn, resulted in a somewhat better movement. Dealers have not been so keen to bid for supplies at these prices as a few weeks ago. Some 3200 to 3300 tons of scrap was loaded

Iron and Steel Scrap Prices

Corrected to Tuesday noon. Gross tons delivered to consumers, except where otherwise stated

Steel Works Scrap

HEAVY MELTING STEEL

Birmingham	12.00 to 12.50
Boston, dealers	12.50 to 13.00
Boston, No. 2	10.00 to 10.50
Buffalo, No. 1	16.00 to 17.50
Buffalo, No. 2	14.50 to 14.75
Chicago	14.75 to 15.25
Cincinnati, deal.	14.00 to 14.25
Cleveland, No. 1	15.50 to 16.00
Cleveland, No. 2	14.00 to 14.50
Detroit, No. 1 deal.	14.25 to 14.75
Detroit, No. 2 deal.	11.50 to 12.00
East Pa., del. mill	16.50 to 17.00
N. Y., deal. R. R.	12.50 to 13.35
N. Y., deal. yd.	8.25 to 9.25
Pittsburgh, No. 1	18.75 to 19.25
St. Louis, No. 1	14.50 to 15.00
Valleys, No. 1	18.50 to 19.00

COMPRESSED SHEETS

Buffalo (dealers)	14.50 to 14.75
Chicago	13.00 to 13.50
Cleveland	15.50 to 16.00
Detroit, dealers	14.00 to 14.50
E. Pa. new mat.	15.00
Pittsburgh	18.50 to 19.00
Valleys	18.00 to 18.50

BUNDLED SHEETS

Buffalo	12.00 to 12.50
Cincinnati, deal.	11.25 to 11.75
Cleveland	12.50 to 13.00
Eastern Pa.	11.50
Pittsburgh	16.00 to 16.50
St. Louis	10.50 to 11.00

SHEET CLIPPINGS LOOSE

Chicago	8.75 to 9.25
Cincinnati	9.00 to 9.50
Detroit, dealers	9.50 to 10.00
St. Louis	10.50 to 11.00

STEEL RAILS, SHORT

Birmingham	14.00 to 14.50
Boston	10.50 to 12.50
Buffalo	19.00 to 19.25
Chicago (3 feet)	17.50 to 18.00
Chicago, 2 ft. and under	18.00 to 18.50
Cincinnati, deal.	18.50 to 19.00
Detroit, dealers	17.00 to 17.50
Pittsburgh (3 ft.)	20.00 to 21.00
Pittsburgh, 2 ft. and under	20.50 to 21.50
St. Louis	17.00 to 17.50

STOVE PLATE

Birmingham	12.50 to 13.00
Boston consumers	11.00 to 11.50
Buffalo	12.75 to 13.25
Chicago, net	11.50 to 12.00
Cinn., deal., net	9.25 to 9.75
Detroit, net. deal.	9.50 to 10.00
Eastern Pa.	11.50 to 12.00
N. Y., deal., mill	8.00 to 8.50
St. Louis	12.50 to 13.00

COUPLERS, SPRINGS

Buffalo	19.00 to 19.50
Chicago	16.50 to 17.00
Eastern Pa.	21.00 to 21.50
Pittsburgh	21.50 to 22.00
St. Louis	15.50 to 16.00

ANGLE BARS—STEEL

Chicago	16.50 to 17.00
St. Louis	14.50 to 15.00

LOW PHOSPHORUS

Buffalo, billets and bloom crops	19.50 to 20.00
Cleve. billet and bloom crops	17.50 to 18.00
Eastern Pa.	21.00 to 22.00
Pitts. billet and bloom crops	22.50 to 23.50
Pitts., sheet bar crops	21.00 to 22.00

FROGS, SWITCHES, GUARDS

Chicago	16.50 to 17.00
St. Louis	16.25 to 16.75

SHOVELING STEEL

Chicago	14.75 to 15.25
Cleveland	11.50 to 12.00
Detroit, dealers	9.00 to 9.50
St. Louis	14.00 to 14.50

Iron Mill Scrap

RAILROAD WROUGHT

Birmingham	10.00 to 11.00
Boston, dealers	11.00 to 11.50
Buffalo, No. 1	13.50 to 14.00
Buffalo, No. 2	16.00 to 16.50
Chicago, No. 1	15.00 to 15.65
Chicago, No. 2	14.75 to 15.25
Cinn., No. 2	14.00 to 14.25
Eastern Pa.	16.00 to 16.50
N. Y., No. 1 deal.	12.00 to 12.50
Pittsburgh, No. 2	18.50 to 19.00
St. Louis, No. 1	13.00 to 13.50
St. Louis, No. 2	14.00 to 14.50

SPECIFICATION PIPE

Boston	9.75 to 10.00
Eastern Pa.	15.00
New York, deal.	10.25 to 10.75

BUSHELING

Buffalo, No. 1	14.50 to 14.75
Chicago, No. 1	13.00 to 13.50
Cinn., No. 1 deal.	11.00 to 11.25
Cinn., No. 2	7.00 to 7.50
Cleveland, No. 1	14.50 to 15.00
Cleveland, No. 2	10.75 to 11.00
Detroit, No. 1 deal.	13.00 to 13.50
St. Louis, No. 1	10.00 to 10.50
Valleys, new No. 1	16.00 to 16.50

MACHINE SHOP TURNINGS

Birmingham	7.00 to 8.00
Boston	6.50 to 7.00
Buffalo	7.25 to 7.75
Chicago	7.50 to 8.00
Cincinnati, deal.	8.50 to 9.00
Cleveland	9.50 to 10.00
Detroit	8.50 to 9.00
Eastern Pa.	11.50 to 12.00
New York, deal.	7.50 to 8.00
Pittsburgh	12.50 to 13.00
St. Louis	7.50 to 8.00
Valleys	11.00 to 11.25

MIXED BORINGS, TURNINGS
For blast furnace use

Boston, dealers	6.10 to 6.50
Buffalo	11.50 to 12.00
Cincinnati, deal.	9.00 to 9.25
Cleveland	10.75 to 11.00
Detroit, dealers	9.75 to 10.25
Eastern Pa.	11.00
New York, deal.	7.00 to 7.25
Pittsburgh	12.50 to 13.00

CAST IRON BORINGS

Birmingham, chem.	13.00 to 13.50
Birmingham, plain	7.00 to 8.00
Boston chem.	10.00 to 10.25
Boston, dealers	6.50 to 6.60
Buffalo	11.50 to 12.00
Chicago	10.00 to 10.50
Cincinnati, deal.	9.25 to 9.50
Cleveland	10.75 to 11.00
Detroit, dealers	8.75 to 9.25
Eastern Pa.	11.50
Eastern Pa., chem.	14.50
New York, deal.	7.00 to 7.25
Pittsburgh	12.50 to 13.00
St. Louis	9.50 to 10.00

PIPE AND FLUES

Cincinnati, deal.	9.00 to 9.50

RAILROAD GRATE BARS

Buffalo	12.25 to 12.75
Chicago, net	11.50 to 12.00
Cincinnati	10.00 to 10.50
Eastern Pa.	12.00 to 12.50
New York, deal.	8.75 to 9.25
St. Louis	12.50 to 13.00

FORGE FLASHINGS

Boston dealers	10.00 to 10.50
Buffalo	13.75 to 14.25
Chicago	10.50 to 11.00
Cleve. over 10 in.	13.25 to 13.50
Detroit	13.00 to 13.50

FORGE SCRAP

Boston, dealers	9.00 to 9.25
Chicago	18.00 to 18.50
Eastern Pa.	14.00

ARCH BARS AND TRANSOMS

Chicago, net	20.50 to 21.00
St. Louis	21.50 to 22.00

Iron, Steel Works Scrap

AXLE TURNINGS

Boston, deal.	6.75 to 7.00
Buffalo	14.25 to 14.75
Chicago	12.50 to 13.00
Cleveland	14.00 to 14.50
Eastern Pa.	14.50 to 15.00
Pittsburgh	16.50 to 17.00
St. Louis	10.00 to 10.50

STEEL CAR AXLES

Birmingham	17.00 to 18.00
Boston, ship point	18.00 to 19.00
Buffalo	19.50 to 20.00
Chicago	18.50 to 19.05
Eastern Pa.	23.00 to 23.50
Pittsburgh	21.50 to 22.00
St. Louis	19.00 to 19.50

SHAFTING

Boston, ship point	14.00 to 15.00
Chicago	17.10 to 17.65
Eastern Pa.	19.00 to 20.00
New York, deal.	14.00 to 14.50
St. Louis	18.50 to 19.00

Iron Foundry Scrap

CAR WHEELS

Birmingham, iron	11.00 to 12.00
Boston, iron	14.00 to 14.50
Buffalo, iron	14.00 to 14.50
Buffalo, steel	19.00 to 19.25
Chicago, iron	14.00 to 14.50
Chi., rolled steel	18.50 to 19.00
Cincinnati	12.50 to 13.00
Eastern Pa. cast.	16.50 to 17.00
Eastern Pa., rolled	20.50 to 21.50
N. Y., iron, deal	12.00 to 12.50
Pittsburgh, iron	16.50 to 17.00
Pittsburgh, steel	21.50 to 22.00
St. Louis, iron	14.50 to 15.00
St. Louis, steel	18.50 to 19.00

No. 1 CAST SCRAP

Birmingham, cup.	13.00 to 14.00
Buffalo	15.75 to 16.00
Boston, textile	14.50 to 15.00
Chicago, mach.	16.25 to 16.80
Chicago, railroad	15.25 to 15.60
Chicago, agri.	14.65 to 15.20
Cincinnati, Mach. cupolas, gross	19.50 to 20.00
Cleveland, cupola	15.75 to 16.25
Detroit, net, deal.	12.00 to 13.00
East Pa., cupola	16.00 to 17.00
N. Y., cup., deal.	12.50 to 13.00
N. Y., del. local foundries	17.00
Pittsburgh, cupola	15.00 to 16.00
San. Fran., del.	13.50 to 14.00
Seattle	14.50 to 14.75
St. L. No. 1 mach.	15.25 to 15.75
St. Louis, No. 1	14.50 to 15.00

HEAVY CAST

Boston	10.50 to 11.00
Buffalo, breakable	12.75 to 13.25
Cleve., breakable	12.50 to 12.75
Detroit, auto, net dealers	12.00 to 13.00
Detroit, break. deal	9.00 to 9.50
Eastern Pa.	15.00
New York, deal.	11.50 to 12.00
Pittsburgh	13.00 to 13.50

MALLEABLE

Boston, railroad	18.50 to 19.00
Buffalo	18.00 to 18.50
Chicago, agri.	15.50 to 16.00
Chicago, railroad	17.00 to 17.50
Cinn., R. R., deal	15.25 to 15.75
Cinn., agri., deal	14.25 to 14.75
Cleveland, rail.	17.50 to 18.00
Detroit auto deal	15.25 to 15.75
St. Louis	14.50 to 15.00

Miscellaneous Scrap

RAILS FOR ROLLING
5 feet and over

Birmingham	13.00 to 14.00
Boston	13.00 to 13.50
Buffalo	16.50 to 17.00
Chicago	17.75 to 18.25
Eastern Pa.	17.00 to 17.50
New York	12.75 to 13.25
St. Louis	16.75 to 17.25

LOCOMOTIVE TIRES

Chicago, cut	18.50 to 19.00
St. Louis, No. 1	15.00 to 15.50

LOW PHOS. PUNCHINGS

Chicago	16.75 to 17.25
Pittsburgh	20.50 to 21.50

for Danzig Saturday and another steamship will take a smaller tonnage.

New York, Aug. 6.—Consuming demand for scrap continues quiet, most tonnage going against back contracts. Prices are unchanged, with firmness in steel grades imparted by scarcity of supplies and the possibility of a renewal in consuming buying shortly.

Philadelphia, Aug. 6.—Activity in iron and steel scrap is restricted to small and moderate sales. A few grades show slight recession.

Buffalo, Aug. 6.—Scrap prices are being advanced by dealers who claim to have made numerous sales at 25 cents up from July averages. A minimum of $17.50 is now asked for selected No. 1 heavy melting steel, while holders of contracts to deliver No. 2 steel have offered $14.75 for suitable tonnage.

Cleveland, Aug. 6.—Iron and steel scrap continues strong. Shoveling turnings have advanced 50 cents to $11.50 to $12. No. 1 heavy melting steel is nominally unchanged at $15.50 to $16, although dealers are reported paying $16.50 for select grades. Supplies of this material are practically unobtainable. The situation is somewhat easier in regard to No. 2 steel, this grade being quoted $14 to $14.50. The leading consumer has cut off shipments of blast furnace grades but is taking a few cars of melting steel.

Detroit, Aug. 6.—Iron and steel scrap prices continue strong. Production of scrap here has been declining, but consumptive requirements of other districts hold at a relatively higher level than production. A West Virginia steelmaker has been a heavy buyer of turnings. Because bundles have been moving out by boat, Youngstown dealers have been buying sheet clippings. Heavy melting steel is up 25 cents, to $14.25 to $14.75. Turnings, flashings and loose clippings have been marked up.

Cincinnati, Aug. 6.—Iron and steel scrap has an undertone of strength as prices generally are firm. Specifications on contracts are fairly good, but as contracts terminate, consumers buy only small lots. Norfolk & Western railroad is offering 4300 tons and the Pennsylvania 50,000 tons.

St. Louis, Aug. 6.—While shipments from country points on contract have picked up somewhat since the first of the month, iron and steel scrap is still relatively scarce and the market continues firm. In some instances consumer stocks have gained slightly during the past two weeks, but the average is still low, and accummulations in dealers' yards are unusually light and assortments far from complete.

Birmingham, Ala., Aug. 6.—With the exception of steel little old material is moving. Quotations are unchanged, the best quality of heavy melting steel holding at $12.50 per ton.

Toronto, Ont., Aug. 6.—More interest was manifest in the Canadian scrap markets during the week. While trading lacks briskness, demand is improving. Inquiries are good and the consumption continues at a high level. Most hand-to-mouth buyers have only limited supplies on hand and will shortly be buying on a more extensive scale. Prices are unchanged.

Pittsburgh, Aug. 6.—Iron and steel scrap has lost no strength as a result of general quiet in mill buying. Instead, prices show a further tendency upward. Tonnage is slightly more difficult to buy, although some smaller steelmakers are reducing operations somewhat, with resulting smaller scrap consumption. No. 1 heavy melting steel is up 25 cents to $18.75 to $19.25 on recent sales of fair-sized lots. A strong market for compressed sheets at Detroit prevents shipment here. Light grades are strong, with axle, machine and shoveling turnings 50 cents higher. Shipments are generally heavy, although two embargoes are in effect.

Canadian Scrap

Dealers' Buying Prices

MONTREAL
Per Gross Ton

Iron axles	$22.00
Steel axles	20.00
Car wheels	16.00
Stove plate	13.00
Wrought pipe	6.00
Turnings	6.50
Heavy melting steel	8.00

TORONTO

Steel axles	15.00
Iron axles	17.00
Heavy melting steel	9.50
Turnings	7.50
No. 1 mach. cast (net)	16.00
Malleable (net)	12.50

Semifinished Steel

Specifications Well Sustained—Prices Are Steady

SEMIFINISHED STEEL PRICES, PAGE 342

Pittsburgh, Aug. 6.—Specifications for semifinished material are well sustained although activity in the spot market is confined to small transactions. Some consumers who were well supplied at the end of the quarter have not entered the market for additional material. Spot sales of rerolling billets and slabs take the $35 price. A number of producers continue out of the market due to the lack of surplus tonnage. Wire rods continue active with the $42 price firm. Specifications for skelp are in fair volume with the market generally 1.90c.

Youngstown, O., Aug. 6.—Consumers of billets and sheet bars are taking all contract shipments. Consumption of wire rods continues satisfactory. The slight recession of activity among a few sheet mills here has not been reflected in materially reduced sheet bar consumption. Sheet bars, billets and slabs hold at $35, Pittsburgh and Youngstown, while wire rods are steady at $42, Pittsburgh and Cleveland.

Cleveland, Aug. 6.—Deliveries of sheet bars, billets and slabs are not so brisk as several weeks ago, though the leading local producer continues to operate at capacity, with schedules arranged 15 days ahead. Prices are steady.

Philadelphia, Aug. 6.—Several sales of billets were made in the past week at $35, Pittsburgh, for rerollers and $40 for forging quality. Wire rod demand continues good and the price is steady at $42, Pittsburgh.

Refractories

Sales Running Ahead of 1928—Much Repair Work Coming

REFRACTORIES PRICES, PAGE 342

Pittsburgh, Aug. 6.—Refractory sales are unusually active, July business showing little change from the active June rate. Repair work by steel mills is heavy, although refractory demand does not indicate the actual pace of open-hearth operations due to the fact considerable repair work still is deferred by the urgency for steel. Shipments so far this year by practically all companies are far ahead of the comparable 1928 total, and for some interests are at a record level.

A fairly large volume of work remains to be placed, including blast furnace, open-hearth and soaking pit work for Johnstown plant of the Bethlehem Steel Co. and blast furnaces of Weirton Steel Co. Brick has been awarded for relining a stack of Toledo Furnace Co. A large number of brick has been placed for by-product coke oven work, delivery of which, however, will be extended over the remainder of the year. Work has been started on new ovens for Jones & Laughlin Steel Corp. at Aliquippa, Pa.

Prices generally are steady, with first-quality fire clay brick commanding $43 to $46 and second quality $35 to $38. Silica brick continues $43, with chrome brick $45.

Licensed To Make New Krupp Alloy

Izett is the name given to a new alloy steel, developed by the Krupp interests in Germany and licensed for manufacture in this country by the Central Alloy Steel Corp., Massillon, O. The largest field for the new alloy is said to be for the construction of boilers and steam generating equipment, the boilers of the new North German Lloyd liner BREMEN being fabricated of this material. The outstanding characteristic of the new steel is its nonaging or failure to become brittle after considerable time and cold work. The field of high-pressure steam generation affords a market for a large tonnage of such a steel, experts claim.

Barton Is Advanced

Charles R. Barton, vice president in charge of the Ambridge, Pa., plant of Spang, Chalfant & Co., Pittsburgh, has been made vice president in charge of operations at Ambridge and Etna, Pa.

Bars

Mills Making Better Delivery—Bookings Better Than Year Ago—Most Users Active

WHILE specifications for soft steel bars are less than a few weeks ago the total is well ahead of previous summers. Mills in the East are gaining on deliveries and can give much better promise. At Chicago deliveries are not being bettered appreciably and four to five weeks rules. Automotive requirements are holding unexpectedly well. Price is steady.

BAR PRICES, PAGE 341

Pittsburgh, Aug. 6.—Bar producers are well abreast of obligations and much of the pressure for delivery has disappeared. Specifications are running below the rate of 30 or 60 days ago although incoming tonnage still is in good seasonable volume and compares favorably with the corresponding periods of preceding years. There is little further decline in requirements of automotive interests. Heavy schedules of the two leading interests, however, sustain demand. Tonnage from miscellaneous users holds fairly well. Mill backlogs have been reduced considerably during recent weeks with current delivery ranging from ten days to two weeks on average sizes. The market continues steady at 1.95c, Pittsburgh.

New York, Aug. 6.—Three weeks to a month continues the rule on deliveries for common sizes of steel bars, although in some cases a little less can be done. Demand continues unusually brisk for this season, with prices at a firm minimum of 1.95c, Pittsburgh.

Detroit, Aug. 6.—Soft steel specifications in the closing days of July for August delivery were light, indicating moderate recession in auto production this month. Buick is not specifying this month on account of delay in its schedule. Dodge is down the first two weeks. Packard approaches new models. Chevrolet will make 108,000 units this month compared with 130,000 in July, and is specifying accordingly. Essex plans to shut down shortly. Ford requirements, however, show no diminution from July, considering all parts makers. Most makers of bars offer 4 to 6-week delivery. On light angles and bar shapes 6 to 8-week delivery is the best. Cleveland mills quote 1.90c to 1.95c, Cleveland; others 1.95c, base, Pittsburgh.

Chicago, Aug. 6.—Mills are making no inroads on bar backlogs. Specifications the past week established a record for summer months. Four to five-week deliveries are being promised by the mills. Both implement and tractor makers have been factors in this buying movement, although the pressure on these consumers is not as great as it has been. Mills continue to quote 2.05c to 2.15c on soft steel bars, with no changes for alloy steel bars.

Philadelphia, Aug. 6.—Falling off in demand continues to characterize the market for steel bars and a number of mills are soliciting business. The price continues 1.95c to 2.00c, base, Pittsburgh.

Sydney Takes More Ore

Toronto, Ont., Aug. 6.—Iron ore mining at Belle Island, Newfoundland, has been greatly stimulated the past few months by increased demands from Sydney, N. S. The reserve stock at the mine has been depleted and night shifts are required to replenish loading pockets.

Revise Hack-Saw Code

Washington, Aug. 6.—The division of simplified practice, department of commerce, is announcing the result of the first revision conference on hack-saw blade standards held in New York May 22. In regard to power hack-saw blades, four sizes were eliminated and five new ones added. The revised schedule was effective as of July 1.

Forge Hammer Purchased

Erie Foundry Co., Erie, Pa., manufacturer of forge shop equipment, announces the receipt of an order for a 30,000-pound steam drop hammer from the Henry Vogt Machine Co., Louisville, Ky. Total weight of the hammer will be 700,000 pounds, the anvils being made in two sections each weighing 250,000 pounds.

Plates

Orders Not Large, but Volume Well Sustained—Tank Work at Chicago Takes 7000 Tons

A DEARTH of large plate orders is noted, but a steady inflow of small and moderate size lots is adding considerable tonnage to backlogs. The market continues firm. Eastern mills are operating practically at capacity. Chicago mills are quoting deliveries 7 to 8 weeks distant; Pittsburgh 6 to 8. Tank awards at Chicago require 7000 tons.

PLATE PRICES, PAGE 341

Chicago, Aug. 6.—Mills are quoting seven to eight weeks deliveries on plates. Shipments have been unusually heavy and sales have been at a rate comparable to shipments. Wisconsin Steel Co. placed 1000 tons of pipe and plate work with John Mohr & Sons, Chicago, last week. Two lots of tank plates taking 7000 tons for delivery in the South and Southwest also were placed. The bulk of the incoming business is made up of a wide variety of small tonnages from consumers in diversified industries. Chicago mills are quoting 2.05c to 2.15c, the latter figure being nominal.

New York, Aug. 6.—Closing of 1800 tons of tank work for Sinclair Oil Co. is announced. Some substantial car business is expected to be placed soon. Plate mills continue to operate practically at capacity, with deliveries ranging from three to six weeks. Prices are firm at 1.95c to 2.05c, Pittsburgh, or 2.05c to 2.15c, Coatesville.

Pittsburgh, Aug. 6.—Plate backlogs have been reduced only slightly during the past 30 days and prospects for additional new business are fairly bright. Considerable tonnage is pending in line pipe work now under consideration, a portion of which may be expected to come to this district. Bridge builders maintain good backlogs and local freight car builders have considerable unfilled business on their books. Backlogs of plate producers still extend as far as six to eight weeks. Prices are reported firm.

Cleveland, Aug. 6.—A steady and large volume of miscellaneous plate orders is coming to mills in this district. Shipments are promised in two to four weeks in some instances, but the leading local mill is behind on its deliveries three to four weeks. Prices are firm at 1.95c, base, Pittsburgh.

Two Great Lakes vessels awarded by the Pittsburgh Steamship Co. for delivery in 1930 will require approximately 10,000 tons of steel, mainly plates. One vessel will be built at the yard of the Toledo Shipbuilding Co., Toledo, O., and the other at the River Rouge, Mich., yard of the Great Lakes Engineering Works.

Philadelphia, Aug. 6.—Plate demand continues sufficient to enable eastern mills to operate fully, although not

quite replacing present shipments. Prices continue 2.05c to 2.15c, base, Coatesville.

CONTRACTS PLACED

3800 tons, Maple Leaf water pipe line extension, Seattle, to Western Pipe & Steel Co.
3700 tons, Cedar River pipe line, Seattle, to Western Pipe & Steel Co.
1800 tons, tank work for Sinclair Oil Co., at Wellsville, N. Y., to Hammond Iron Works and a Chicago fabricator.
1200 tons, 48 to 72-inch pipe, board of water supply, Detroit; awarded through R. D. Baker, general contractor.
510 tons, six dump scows for U. S. Engineers, Cincinnati district, to Marietta Mfg. Co.

CONTRACTS PENDING

10,000 tons, chiefly plates, for two Great Lakes vessels for Pittsburgh Steamship Co.
10,000 tons, pipe line, 44 to 56-inch, Everett, Wash.
2000 tons, surge tank and penstock, Tacoma, Wash. Bids Aug. 8.
200 tons, riveted pipe line, Bremerton, Wash. Bids Aug. 7.

Additional Papers for Welding Meeting

Six technical sessions will be held at the fall meeting of the American Welding society at Hotel Statler, Cleveland, Sept. 9-13. Several additional papers have been announced for presentation, amplifying the list given on page 81 of the July 11 IRON TRADE REVIEW. Papers added to this list are as follows:

"Gas Welding of Steel Buildings," by H. M. Priest, American Bridge Co., Ambridge, Pa.
"Stethoscopic Study of Welds," by A. B. Kinzel, Linde Air Products Co., New York.
"Welding Studies at the Watertown Arsenal," by Major J. B. Rose, ordnance department, United States Army, Washington.
"Welding of Tubing and Pipes for Locomotives and Boilers," by H. A. Woofter, Swift Electric Welder Co., Detroit.
"Carbon Arc Welding," by G. E. Doan and E. E. Kholm, Lehigh university, Bethlehem, Pa.
"Metallographic Studies of Welding and Cutting," by M. Yatsevitch, Watertown arsenal, Watertown, N. Y.

Gear Makers Shift Fall Meeting Place

The fall meeting of the American Gear Manufacturers association will be held at the Benjamin Franklin hotel, Philadelphia, Oct. 24-26. The meeting originally was planned for Briarcliff Lodge, Briarcliff Manor, N. Y. T. W. Owen, secretary of the association, recently announced the change.

June Output Index Up

Washington, Aug. 6.—Iron and steel June production index is given as 155, compared with 145 for May and 115 for June, 1928, taking 1923-1925 at 100, according to the department of commerce.

Nonferrous metals production index for June was 126, compared with 137 for May and 115 last June, while iron and steel unfilled orders for June are given at 85 compared with 87 for May and 75 for June, 1928.

Pipe

Fairly Slow Market Exists—Moderate Tonnages in View—Tubing Demand Holds Well

LARGE tonnages of cast and steel pipe are notable for their absence from the market at the moment. Eastman Kodak Co. will require 3000 tons of 36-inch cast pipe. A number of sewage disposal plants in Illinois are pending. Tubular products are being taken in good volume, merchant pipe being less active and oil country demand unchanged.

PIPE PRICES, PAGE 342

New York, Aug. 6.—Up to 3000 tons of 36-inch cast pipe will be required by Eastman Kodak Co., Rochester, N. Y., in an expansion program. About 500 tons remains to be placed for subway work, but some delay has been encountered in closing on subway contracts. An oil company will require 500 tons of 36-inch pipe and early action is expected on this item. While scattered carload lots are moving, the market is generally slow and large projects bring out a wide variety of bids. The general contract for additional work for the state hospital in Rockland county has been awarded to Miller & Gaynor. More than 1000 tons of pipe of various sizes will be needed. United States Pipe & Foundry Co. was awarded 625 tons of 8-inch cast pipe for Yonkers, N. Y. Pipe business in New England is reported slow.

Pittsburgh, Aug. 6.—Aggregate demand for tubular products holds at a satisfactory rate compared with preceding years. This is in spite of tapering in merchant pipe activity. Opposed to the trend in merchant pipe, however, is a well sustained demand for mechanical and locomotive and boiler tubing in addition to considerable activity in larger diameters of welded line pipe. Little change is noted in demand from the oil country. No further developments are noted in the large midwestern line pipe job of the Doherty interest. Pipe mill operations are unchanged at an average of 60 or 70 per cent.

Cleveland, Aug. 6.—An active demand for merchant pipe for jobbers is the feature of the market. Some mills are filled up for line pipe for remainder of the year. Lapweld pipe is being booked for October and November shipment. Prices are steady.

Chicago, Aug. 6.—Iuterest in the water pipe market centers in several important sewage treatment projects. Alexander Riepaff has been awarded the general contract for a sewage disposal plant at Grand Rapids, Mich., involving 200 tons of miscellaneous sizes. Bids on Rockford, Ill., sewage treatment works were received today, about 300 tons of various sizes of water pipe being involved. The Peoria, Ill., job comes up Aug. 8 and requires about 600 to 800 tons. Bids have been tabulated for the Hinsdale, Ill., project for which bids were submitted last week. A fair volume of small-lot contract and private orders is reported, some of which are only a few tons each. Backlogs of pipe foundries have dropped sharply in the past 30 days. Carload prices are being maintained in this market on the basis of $37 to $38, base, Birmingham.

Birmingham, Ala., Aug. 6.—Production of cast iron pressure pipe has not been interfered with and shipments are active. New lettings are being reported, though the aggregate tonnage is not heavy. The market is in better condition than during midsummer last year.

CONTRACTS PLACED

18,000 feet of 6 and 8-inch pipe for Clio, Mich., to McWane Cast Iron Pipe Co.
1600 tons, 4 to 8-inch pipe for Chicago, to Glamorgan Pipe & Foundry Co. at $46, delivered.
1500 tons, 4 to 6-inch, class B, for Brooklyn Gas Co., Brooklyn, N. Y., to R. D. Wood & Co.

CONTRACTS PENDING

43,000 feet each of 6 and 8-inch pipe for Hamilton county, O.; bids Aug. 2.
875 tons, 10 to 24-inch class B, Bremerton, Wash.; bids Aug. 7.
600 to 800 tons, various sizes of water pipe for Peoria, Ill., sewage treatment works; bids Aug. 8.
300 tons, various sizes of pipe for Rockford, Ill., sewage treatment works; bids Aug. 6.
200 tons, various sizes, sewage disposal plant, Grand Rapids, Mich. Alexander Riegoff general contractor.
199 tons, 4 to 8-inch class B, Alturas, Calif.; bids Aug. 15.

Universal Earns More

Universal Pipe & Radiator Co., New York, reports net earnings for the second quarter, after all deductions including depreciation, debenture bond interest, federal taxes, etc., totaling $115,241.46. This compares with $10,622.76 earned in the first quarter. The company states that while price conditions generally are favorable, volume of business has declined but improvement is expected in the third quarter.

Blaw-Knox Gets Plants

Pittsburgh, Aug. 6.—Blaw-Knox Co., Blawnox, Pa., has successfully concluded its program for acquiring control of the Union Steel Casting Co., the Lewis Foundry & Machine Co. and the National Alloys Steel

Co., all with plants in the Pittsburgh district. It is stated that the corporate identity of each acquired plant will be maintained. The Union Steel Casting Co., in turn, controls the capital stock of the Pittsburgh Rolls Corp. Details and a description of the companies were given on page 284 of IRON TRADE REVIEW for Aug. 1.

Alloy Steel

Specifications Taper, but Improvement Next Month Probable

ALLOY STEEL PRICES, PAGE 342

Detroit, Aug. 6.—Alloy steel specifications have been sharply sensitive to the decline in automotive production, and are now the lowest of the year. Shipments into the district this month probably will be slightly lower than in July. From May there has been a drop of 30 to 35 per cent for some makers. Improvement is looked for in September. A good average for alloy steel bars is 2.65c, base, nearest mill.

Tin Plate

Business Ahead of 1928 and Near Record of 1926

TIN PLATE PRICES, PAGE 342

Pittsburgh, Aug. 6.—Despite general lack of pressure for tin plate some producers are receiving occasional rush orders for material to supplement previous tonnages. General line can demand continues heavy and total tonnage is running at a high seasonal rate. Business during the first eight months of this year in addition to showing a gain over the comparable 1928 figure compares favorably with the record 1926 tonnage. Operations of some of the independent producers still are at capacity despite the passing of the usual period at which a decline is to be expected. Average operations for the district, however, are slightly lower this week at around 90 per cent. Tin plate continues $5.35 per 100-pound, base box, Pittsburgh.

Plan Trade Conference To Precede Meeting

Application has been made by the American Institute of Steel Construction Inc. to the Federal Trade commission for a trade practice conference to be held on the two days preceding the annual convention of the institute at Biloxi, Miss., Nov. 13-16. This conference will consider the report of the committee, acting in behalf of the institute, which is completing the tentative code of selling practice. Invitations to attend the conference will be issued by the Federal Trade commission to the entire industry irrespective of membership in the American Institute of Steel Construction.

Sheets

Production in Past 12 Months Sets New Record in Pittsburgh District—Demand Is Slower

SHEET producers have just completed the most active 12 months in point of production in their history, leading interests in the Pittsburgh district report. Hot weather and lack of sheet bars are preventing Chicago district mills from operating at capacity. In view of such conditions a slight tapering in demand is not disconcerting, and prices generally are steady.

SHEET PRICES, PAGE 341

Pittsburgh, Aug. 6.—Sheet demand shows a decrease of no more than seasonal proportions, and backlogs continue of substantial proportions. Producers have just completed 12 months of the most active production in the history of the industry, but failure of incoming business to decline markedly indicates satisfactory output the remainder of this quarter. Increase in supplies of semi-finished steel has enabled producers to catch up with obligations the past few weeks and current backlogs are from one to three weeks smaller than 60 days ago. Delivery on blue annealed sheets now can be made in about four weeks, and galvanized in three or more weeks. Demand continues well diversified with the heavy requirements of Ford and Chevrolet tempering the decline in automotive tonnage. Agricultural implement manufacturers are taking material in good volume. Recent increase in the price of wheat affected sheet demand through the decision of grain growers to sell immediately rather than store crops. Prices show no further easiness. Galvanized and black sheets have been unsteady but continue 3.50c, Pittsburgh and 2.85c, respectively. Blue annealed sheets are steady at 2.35c with automobile sheets continuing 4.10c. Sheet operations are slightly higher this week at 95 per cent.

New York, Aug. 6.—An easier tone is noted on the sheet market. Galvanized sheets are 3.60c, Pittsburgh, on general run of business and black at 2.85c to 2.95c, Pittsburgh. Blue annealed plates are unchanged at 2.20c, Pittsburgh, and blue annealed sheets at 2.35c, Pittsburgh. Deliveries on the latter are being offered by some mills at around six weeks.

Buffalo, Aug. 6.—Sheet business is being taken at slightly lower prices than second quarter averages. Black sheets can be bought at 3.115c, Buffalo, a decline of $2 a ton. Automobile body grades are holding at 4.365c, Buffalo.

Youngstown, O., Aug. 6.—A slight recession in new buying of the common grades of steel sheets has reduced the rate of operations of independent mills in this district this week to around 88 per cent. This compares with about 93 per cent last week. Shipments of blue annealed and autobody grades continue good. Galvanized sheets are held at 3.60c, Pittsburgh, autobody at 4.10c and common black at 2.85c, with some makers continuing to deliver in third quarter on contracts at 2.95c. Blue annealed sheets are firm. Liberty works of Republic Iron & Steel Co., making tin mill black, did not finish out last week, but started again yesterday.

Cleveland, Aug. 6.—Sheet specifications have tapered off, but miscellaneous requirements are tending to stabilize the market, and offset some of the loss in tonnage due to a slower shipments to the automotive industry. Backlogs continue of such substantial proportions that makers express general satisfaction with the situation. Galvanized sheets have settled to 3.60c, Pittsburgh, and while some mills continue to quote 2.95c on black, 2.85c is the more general price, and some quoting 2.95c will accept substantial orders at 2.85c. Other prices are firm.

Detroit, Aug. 6.—With Buick behind its schedule and not specifying this month, Chrysler slowly swinging into its new models, Dodge down for half a month, Essex slated for a shutdown and Chevrolet scheduling 108,000 units this month compared with 130,000 last, sheet specifications are lighter. August shipments into this district probably will show a moderate decline from July. General sentiment, however, is that September will come back, strongly. On full finished sheets deliveries can be made in four to six weeks and 4.10c, Pittsburgh, is firm. Deliveries are further deferred on black and blue annealed, particularly the latter. Black sheets are 2.75c, Pittsburgh, to most users. For No. 13 gage blue 2.35c is quoted, but strip makers get a large share of this business.

Cincinnati, Aug. 6.—Well sustained demand for sheets from manufacturers of electrical devices, metal furniture and partitions is tending to offset decrease from automobile manufacturers, bringing new bookings by district sheet mills to a high level for midsummer. Production, however, exceeded demand the past week. Prices are steady.

Chicago, Aug. 6.—New orders for steel sheets continue to offset heavy shipments. The operating rate remains about 80 to 85 per cent, only hot weather and continued shortage of sheet bars preventing capacity schedules. Blue annealed deliveries have not improved, mills quoting 12 to

(*Concluded on Page 357*)

Structural Shapes

Numerous Small Lot Contracts Take up Slack in Large Tonnage Lettings—Seasonal Recession Is Light

STRUCTURAL steel fabricators are keeping operations above seasonal levels with a large number of small-tonnage projects. Recession in activity, usual at this time, has not appeared, and structural interests expect to continue current operations almost undiminished into the fall. Few heavy projects are being let, and not many are in process of negotiation. A few jobs, requiring large tonnages should be closed shortly. Added to current inquiry is an Ohio bridge for which 3000 to 4000 tons of shapes will be bought. Two 6000-ton awards feature the week's buying movement.

Plain material prices are steady, with shading confined to occasional individual jobs where special attractiveness brings forth concessions.

STRUCTURAL SHAPE PRICES, PAGE 341

New York, Aug. 6.—Demand for structural steel shows little abatement. Subway and bridge work lead pending tonnage. Indications are the usual seasonal recession will not develop. Six thousand tons for a building was awarded Levering & Garrigues. Phoenix Bridge Co. was low on 14,000 tons for two Pennsylvania railroad bridges over Hackensack river getting one contract for 6000 tons. American Bridge Co. took 2550 tons for pier 3, department of docks, and 3800 tons for Hell Gate power house expansion. Among new pending jobs on which bids have been asked are 2700 tons for a New York Central railroad grade crossing and 2500 tons for airport construction in various districts for Curtiss Airport Corp. A fair volume of school work has been placed. Mills continue to operate at capacity, and new business exceeds production. Prices are unchanged.

Boston, Aug. 6.—Pending structural work includes 200 tons for the Bass river bridge at Beverly, Mass., and 100 tons for an office building at Nashua, N. H. Three contracts placed call for 700 tons.

Philadelphia, Aug. 6.—Structural shape demand continues good, eastern mills operating substantially full, with fair schedules ahead. Prices reflect some variation, particularly when large tonnage is required, but the general market continues steady at 2.01c to 2.11c, base, delivered, Philadelphia.

Pittsburgh, Aug. 6.—Fabricated structural steel market is slightly more active in new inquiry and awards. Lettings of small lots are fairly numerous, interspersed with occasional large tonnages. Aluminum Co. of America has placed 1300 tons for an addition to its tube mill at New Kensington, Pa. Operations of fabricators are off slightly and backlogs have been reduced the past 30 days. Specifications for plain material continue seasonally heavy despite a decrease from the rate a month ago.

Buffalo, Aug. 6.—Contracts for the new city hall are expected to be signed Sept. 3 and the work is expected to go ahead. John W. Cowper Co., Buffalo, is the general contractor. The project requires nearly 9000 tons of shapes and bars. Award of 850 tons of fabricated steel for the new office building to be erected by New York state at Buffalo to McClintic-Marshall Co. is announced. Other large tonnage pending indicates fabricators will have an unusually busy last quarter. Their third quarter tonnage is satisfactory, they report.

Cleveland, Aug. 6.—Fabricators are figuring on a suspension bridge over the Maumee river at Toledo for the city of Toledo, to require 3000 to 4000 tons, bids for which are due Aug. 14. This is the largest job pending. The Massillon Bridge & Structural Co. was awarded 350 tons for the First Church of Christ, Scientist, Overlook road, Cleveland, and a highway bridge taking 400 tons at Batchellerville, N. Y., was awarded to an unknown bidder. Miscellaneous requirements of small size make up a fairly good total. Prices are steady.

Chicago, Aug. 6.—Sales continue at a rate equal to, or perhaps slightly better, than shipments. During the past week the market has been characterized by the surprisingly large volume of relatively small orders from a great variety of sources. Two new inquiries call for about 1000 tons of structurals. As the fall approaches an increase in building activity in the Chicago district is expected. At Milwaukee and St. Louis building activities have been satisfying. The large number of mill and industrial plant extensions, each involving small tonnages, lends much support. Chicago mills quote 2.05c to 2.15c for plain material, the 2.15c price being regarded as nominal. Deliveries are given as four to six weeks.

CONTRACTS PLACED

6000 tons, London Terrace building, Twenty-third street, New York, to Levering & Garrigues Co.

6000 tons, Pennsylvania railroad bridge over Hackensack river, N. J., to Phoenix Bridge Co. This is one of two bridges for which 14,000 tons was pending.

3800 tons, Hell Gate power house, New York, to American Bridge Co.

2550 tons, pier 3, department of docks, New York, to American Bridge Co.

2500 tons, shop addition for New York Central railroad, Harmon, N. Y., to American Bridge Co.

2000 tons, loft building, Madison avenue, New York, to Taylor-Fichter Steel Construction Co.

1600 tons, office building, Park avenue, New York, to Paterson Bridge Co.

Awards Compared

	Tons
Awards this week	41,444
Awards last week	37,805
Awards two weeks ago	32,223
Awards this week in 1928	22,500
Average weekly awards, 1928	39,082
Average weekly awards, 1929	41,590
Average weekly awards, July	34,526
Total awards to date, 1928	1,221,362
Total awards to date, 1929	1,330,895

1500 tons, railroad bridges in Texas, to Virginia Bridge & Iron Co.

1350 tons, building, 104th street and Central Park, west, New York, to Easton Structural Steel Co.

1300 tons, tube mill addition, Aluminum Co. of America, New Kensington, Pa.; to McClintic-Marshall Co.

1000 tons, screening plant, Michigan Limestone Co., Rogers City, Mich., to American Bridge Co.

1000 tons, steel columns for building at Varick and Charlton streets, New York, to Levering & Garrigues Co.

850 tons, New York state office building, Buffalo, to McClintic-Marshall Co.

700 tons, office building, Portland, Oreg., to Poole & McGonigle.

700 tons, hydroelectric development, Irmo, S. C., to Belmont Iron Co., through W. S. Barstow & Co., Reading, Pa.

650 tons, bank, Stamford, Conn., to McClintic-Marshall Co.

600 tons, Boston & Albany railroad round house, Beacon Park, Mass., to McClintic-Marshall Co., previously reported placed with fabricator unstated.

450 tons, building, East Seventy-ninth street, New York, to Paterson Bridge Co.

400 tons, highway bridge, Bachellerville, N. Y., to unknown bidder in addition to 1600 tons recently placed with Pittsburgh-Des Moines Steel Co.

400 tons, Hall building, Kansas City, Mo., to Kansas City Structural Steel Co.

400 tons, Boston Insurance Co. building, Boston, to New England Structural Co.

387 tons, public school No. 154, New York, to Easton Structural Steel Co.

385 tons, public school No. 135, New York, to Easton Structural Steel Co.

375 tons, field house, University of Missouri, Columbia, Mo., to Stupp Bros. Bridge & Iron Co.

365 tons, umbrella sheds for Birmingham Terminals Co., Birmingham, Ala., to Virginia Bridge & Iron Co.

350 tons, service station, Mack Truck Co., St. Louis, to Mississippi Valley Structural Steel Co.

350 tons, church, Jersey City, N. J., to Mullaney Iron Works.

350 tons, Tennessee state bridges, to Virginia Bridge & Iron Co.

350 tons, First Church of Christ, Scientist, Overlook road, Cleveland, to Massillon Bridge & Structural Co.

300 tons, public school No. 71 addition, New York, to Easton Structural Steel Co.

300 tons, Seaboard National Bank addition, New York, to Levering & Garrigues Co.
300 tons, school, Floral Park, Long Island, N. Y., to Elby Structural Steel Co.
260 tons, Philadelphia & Reading railroad cleaner plant, Locust and Summett, Pa., to Shoemaker Bridge Co.
250 tons, telephone buliding, Dobbs Ferry, N. Y., to Elby Structural Steel Co.
250 tons, viaduct, East Thirty-third street, Portland, Oreg., to Lindstrom & Feigenson.
214 tons, apartment, East Seventy-fourth street, New York, to Easton Structural Steel Co.
200 tons, plant building, Duquesne Slag Products Co., Pittsburgh, to Pittsburgh Bridge & Iron Works.
200 tons, plant addition, Edgewater Steel Co., Oakmont, Pa., to Guibert Steel Co.
200 tons, St. Margaret's school, New York, to McClintic-Marshall Co.
200 tons, tower house, Slatersville, Mass., to H. P. Smith & Co.
175 tons, plant building, Pittsburgh Plate Glass Co., Mt. Vernon, O., to Pittsburgh Bridge & Iron Works.
133 tons, addition to building 61 Broadway, New York, to Post & McCord.
100 tons, plant building for Anderson-Barngrover Co., San Jose, Calif., to Dyer Bros.
100 tons, school, Long Beach, Long Island, N. Y., to Elby Structural Steel Co.
100 tons, bridge, Canton, Mass., to Boston Bridge Works.

CONTRACTS PENDING

3000 to 4000 tons, suspension bridge over Maumee river at Toledo, O. Bids due Aug. 14.
2500 tons, airport construction in various locations, Curtiss Airport Corp.
2400 tons, Eleventh street viaduct, Tacoma, Wash. Bids shortly.
1800 tons, Morgan Brown apartment, Fifth avenue, New York.
1725 tons, New Jersey State Highway commission highway, Elizabeth, N. J.
1675 tons, Lenox Hill hospital, New York.
1300 tons, boiler plant, Western Electric Co., Baltimore. Steel to be bought Aug. 8 by H. K. Ferguson Co., Cleveland.
950 tons, West Garfield street bridge, Seattle.
800 tons, five Pennsylvania railroad bridges.
750 tons, Germantown Bank & Trust Co., Germantown, Pa.
700 tons, mill building, Laclede Steel Co., East St. Louis, Ill.
300 tons, Central Park west apartment, New York.
300 tons, New York Central grade crossing, Forks, N. Y.
300 tons, store, Market street, San Francisco. Bids being received.
200 tons, Bass river bridge, Beverly, Mass.
100 tons, office building, Nashua, N. H.
Unstated tonnage, addition to Polyclinic hospital, New York.
Unstated tonnage, 6-story office building, Portchester, N. Y.
Unstated tonnage, main building, Kings County hospital, Brooklyn, N. Y.

June Foundry Output at Worcester Declines

Worcester, Mass., Aug. 6.—Iron foundry production in the Worcester district, as reported by 11 foundries composing the foundry council, for June was 4,199,102 pounds, a marked decline from May, but a decided gain over June, 1928. Figures representing monthly comparisons follow:

1928	Pounds
June	3,439,880
July	3,465,559
August	3,181,115
September	3,110,968
October	3,709,744
November	3,981,883
December	4,175,119
Total, 1928	42,276,248
1929	
January	3,841,380
February	4,356,460
March	5,029,613
April	4,916,263
May	5,231,926
June	4,199,102

Concrete Bars

Mill Specifications Good—Prices Steady Except at Chicago—Inquiry Active

SPECIFICATIONS for concrete bars continue to flow evenly to mills. Although awards are small, inquiry continues active and summer dullness is not expected to become any more accentuated. Building permits in Chicago in July dropped 51.06 per cent in value from July, 1928. Prices generally are steady except at Chicago where new billet prices are being shaded.

REINFORCING BAR PRICES, PAGE 341

Chicago, Aug. 6.—Reinforcing bar prices, both rail and billet steel, show continued unsteadiness. Rail steel bars are quoted 1.95c to 2.05c, Chicago, for both building and road work. Billet quotations at 2.30c are common. About 2000 to 2500 tons of larger building projects has appeared in fresh inquiry, while numerous small jobs are reported. Railroad buying for bridge and other structures continues active. Chicago building permits in July dropped 51.06 per cent in value from last year, and decreased 252 individual units.

Boston, Aug. 6.—Small sales of concrete bars the past week aggregate 300 tons. Including 250 tons for the Boston & Maine, 1000 tons should be placed shortly.

New York, Aug. 6.—A fair volume of pending tonnage prevails for concrete bars with prices firm. Shading is less frequent. Out of New York warehouses 2.90c governs, and billet steel reinforcing bars hold at 2.05c, Pittsburgh, for uncut lengths and 2.30c for cut lengths. A large volume of bridge work will require concrete bars in the East, while New York subways will take a substantial tonnage.

Pittsburgh, Aug. 6.—Specifications to mills for concrete reinforcing bars held to better than the usual seasonal level. Incoming business during July was fully equal to the June tonnage and backlogs of producers have been reduced little during the past 30 days. Awards continue heaviest from outlying districts with activity in this territory limited to small-lot orders. A sizeable tonnage. however, remains pending. Inquiry is well sustained. The market is steady at 2.30c, Pittsburgh, for cut lengths and 2.05c for stock lengths.

Buffalo, Aug. 6.—There is a good demand for reinforcing bars although large lots are lacking. Steelworks producing reinforcing bars are operating at 90 per cent. Claim is made here that outside interests have cut prices $1 to $2 a ton when large lots were involved.

Cleveland, Aug. 6.—Demand for concrete bars is quieter and comprises small miscellaneous orders. Bourne-Fuller Co. was awarded 230 tons for an addition to the Richman Bros. Co. building, Cleveland.

Awards Compared

	Tons
Awards this week	2,364
Awards last week	7,378
Awards two weeks ago	6,297
Awards this week in 1928	5,381
Average weekly awards, 1928	6,189
Average weekly awards, 1929	6,223
Average weekly awards, July	5,435
Total awards to date, 1928	225,440
Total awards to date, 1929	200,234

CONTRACTS PLACED

600 tons, ammunition depot, Hawthorne, Nev., to Truscon Steel Co.
400 tons, wire mesh, ammunition depot, Hawthorne, Nev., to Truscon Steel Co.
300 tons, sewer, Bronx, N. Y., to Kalman Steel Co.
230 tons, addition to Richman Bros. Co., building, Cleveland, to Bourne-Fuller Co.
205 tons, bank, Beverly Hills, Calif., to Soule Steel Co.
170 tons, coal pocket for Delaware, Lackawanna & Western railroad, South Brooklyn, N. Y., to McClintic-Marshall Co.
130 tons, Science hall, University of Nevada, Reno, Nev., to Truscon Steel Co.
119 tons, garage, Monterey, Calif., to unstated company.
110 tons, building, Fifth avenue, New York, to John T. Crimmins Co.
100 tons, Tacoma avenue highway, Washington state, to Northwest Steel Rolling Mills.

CONTRACTS PENDING

1150 tons, West Garfield street bridge, Seattle. Bids Aug. 2.
500 tons, McMillen building, Barnes hospital, St. Louis.
450 tons, Wilbur Wright school, Chicago, W. E. O'Neil Construction Co., general contractor.
400 tons, coal pocket, Delaware, Lackawanna & Western railroad, Jersey City, N. J.
300 tons, post office, Brooklyn, N. Y.
300 tons, bridge piers and approach for new depot, Cincinnati Union Depot Co., Cincinnati.
250 tons, Henrici office building and restaurant, Chicago; general contract to R. C. Wieboldt Co., Inc.
200 tons, new hospital, Christ hospital, Cincinnati.
125 tons, Parker school, Chicago.
120 tons, pier No. 3, department of docks, New York.
100 tons, fertilizer building for Swift & Co., Chicago.
100 to 200 tons, new building, the Hamilton County Tuberculosis hospital, Cincinnati.
100 tons, New York Central railroad viaduct,

241st street, New York, to Bates & Rogers Construction Co.

Iron Ore

Shipments Continue At Record-Breaking Rate

IRON ORE PRICES, PAGE 342

Cleveland, Aug. 6.—Lake Superior iron ore shipments continue at the high rate which has made the year's total so far a record for the comparable period. An accelerated movement in the last ten days of July carried the total for the month beyond the estimate made by the Lake Superiod Iron Ore association, and made a total of 10,670,882 tons, a record for that month. The largest previous July movement was in 1918, with 10,659,203 tons. The association's report of shipment to Aug. 1 this year, compared with 1928 follows:

Port and Dock	To Aug. 1, 1928	To Aug. 1, 1929
ESCANABA:		
C. & N. W.	1,641,794	2,312,788
C. M. & St. P.	731,021	902,033
MARQUETTE:		
D. S. S. & A.	392,545	416,124
L. S. & I.	1,056,129	1,846,239
ASHLAND:		
C. & N. W.	2,112,123	2,791,571
Soo Line	780,506	1,313,977
SUPERIOR:		
Great Northern	5,756,252	8,520,265
Soo Line	432,792	645,155
Northern Pacific	288,470	349,929
DULUTH:		
D. M. & N.	7,539,541	10,429,324
TWO HARBORS:		
D. & I. R.	2,543,651	3,383,415
Total	23,274,824	32,910,820
1929 Increase		9,635,996

Pittsburgh Steamship Co., subsidiary of United States Steel Corp., has awarded contracts for two more ore carriers of the 600-foot class, one to be built at the yard of the Toledo Shipbuilding Co., and the other at the River Rouge yard of the Great Lakes Engineering Works. Three vessels of the same class were launched for the Pittsburgh company recently within a month.

Timken Axle Earns Well

Timken Detroit Axle Co. reports for first half of 1928 net profits of $880,708 after all charges, including federal taxes, equivalent, after dividend requirements on 7 per cent preferred stock, to 76 cents a share on common stock. This compares with 70 cents a share for first half of 1928.

Announces Night Course

The department of mechanical engineering, Brooklyn Polytechnic institute, Brooklyn, N. Y., is offering an evening course in diesel and oil engines, registration being acceptable any time after Sept. 1. The course includes 20 two-hour lectures supplemented by classroom exercises and laboratory periods. The first lecture will be given Tuesday, Sept. 24.

Rails, Cars

Rail Production Diminishing—Carbuilders' Specifications Active in Middle West

RAIL mill oprations are tending to slow up in the Pittsburgh district. Orders for 2500 tons of accessories were placed at Chicago during the week. Specifications from carbuilders are active. Union Pacific is inquiring for 400 to 500 refrigerator cars, and another western road expects to buy 1000. Boston & Maine contemplates the purchase of 1000 box cars.

RAILROAD TRACK PRICES, PAGE 342

Chicago, Aug. 6.—Rail mills in this district continue to operate at about 75 per cent, and judging from present appearances it seems likely they will continue at this rate throughout the year. No rail orders were placed during the past week. The Northern Pacific inquiry, expected to take 15,000 tons of rails, has not been received by the mills. Accessory buying continues spotty, the majority of the carriers having already covered for their year's requirements. A fair volume of business continues to come in from week to week, orders for approximately 2500 tons having accumulated during the past seven days. Demand for light rails is practically nil. Union Pacific railroad is inquiring for 400 to 500 refrigerator cars, and another western road is expected to come into the market this week for approximately 1000 cars. Specifications from carbuilders are active. Canvass of carriers' needs points to rather lively car buying early this fall and continuing, perhaps, throughout the remainder of the year. This is according to reports received by leading builders.

New York, Aug. 6.—August started off slowly in the car market here. A good number of cars are pending, however, including 1250 for the Lackawanna and 200 for the Reading, both previously noted. Boston & Maine contemplates the purchase of 1000 box cars.

The Union Pacific is inquiring for 400 refrigerator cars for the Pacific Fruit Express. Approximately 2800 domestic freight cars and 540 passenger cars are actively pending in the present list.

Philadelphia, Aug. 6.—The Pennsylvania railroad is asking for bids to be opened Aug. 16 on 28,750 tons of plates, shapes and bars, and 18,000 car wheels. The market here in other respects is quiet.

Pittsburgh, Aug. 6.—Activity in track material is influenced by seasonal conditions although business compares favorably with the rate a year ago. There is little additional inquiry of sizable proportions for rails or equipment. Inquiry of the New York, New Haven & Hartford railroad remains pending. Rail mill operations are tending downward. Light rails are in fair demand. Track material prices are well maintained with the 2.80c Pittsburgh, price on railroad spikes steady.

General orders coming to carbuilders are not large at this time, but additional business of considerable size is expected to develop later in the year.

CAR ORDERS PLACED

Cudahy Packing Co., steel for 50 underframes which it will build in its own shops, to an unnamed seller.
General Chemical Co., 36 tank cars, to American Car & Foundry Co.
Unnamed buyer, 100 tank cars, to Pennsylvania Tank Car Co.

LOCOMOTIVES PLACED

Rede de Diacao Cearense, Brazil, three locomotives, to Baldwin Locomotive Works.

CAR ORDERS PENDING

Bessemer & Lake Erie, 25 gondola cars; bids asked.
Boston & Maine, 1000 box cars; bids contemplated.
Wabash, 100 hopper car bodies; bids asked.
400 refrigerator cars, Union Pacific for Pacific Fruit Express.

LOCOMOTIVE ORDERS PENDING

National, Chattanooga & St. Louis, five locomotives, reported contemplated.

American Puddled Iron Co. Takes Back Plant

Youngstown, O., Aug. 6.—American Puddled Iron Co. announces that when the A. M. Byers Co. next Dec. 31 concludes operations in the American company's plant at Warren, O., it will begin operations in the plant. The Byers company is constructing a new plant at Ambridge, Pa., and will turn back its leased plant at Warren, including equipment, to the American company.

Under license, the American company will produce wrought iron under the Aston process in semifinished form such as sheet bars, muck bars, billets and blooms. Eventually, finishing capacity, including sheet mills, are under consideration. Its license under the Aston process bars it from the production of wrought iron pipe.

Calumet Foundry & Machine Co., East Chicago, Ind., will have seven instead of four directors.

The Market Section

Strip

Production and Demand Hold at High Rate—Mills Make Little Delivery Progress

COLD-ROLLED strip steel continues active and tonnage is gaining to some extent, while hot-rolled is in less demand. Deliveries are little changed, some gains being made. Prices have stiffened and fewer concessions are being made on cold strip. Some producers find current bookings the best in six months. Automotive decline is of little effect.

STRIP PRICES, PAGE 342

Chicago, Aug. 6.—Operating rate of hot strip mills in this district continues around 85 per cent which, in view of weather conditions, is practical capacity. While the large overflow of strip business of the past month or two shows some lessening, business on hand, with incoming orders, will permit no letup of mill operations for some time. Mid-season adjustment of automotive schedules has depressed demands of these consumers. One of the biggest producers of low-priced cars is reported to have curtailed production 15 per cent and to be preparing to introduce a new model soon instead of waiting the end of the year. Prices are reported firm at 2.10c to 2.30c, Chicago, for 6-inch and under, and 2.00c to 2.10c, Chicago, for 6½-inch to 24-inch.

Cold-rolled strip specifications have tapered slightly, backlogs are being cut down and specifications are curtailed. Prices are reported as usually firm at 2.75c to 2.85c, Pittsburgh-Cleveland.

New York, Aug. 6.—Deliveries on strip steel continue fairly advanced. Some mills are unable to offer less than four weeks on small hot strip and six on the larger. One mill is unable to offer cold strip under four weeks and in some other cases more advanced deliveries are noted. Hot strip is unchanged, holding at 2.00c, Pittsburgh, on up to 6 inches in width and 1.90c, Pittsburgh, on 6 to 24 inches. The price of 2.75c, Pittsburgh, appears to be the dominating figure on cold rolled steel.

Pittsburgh, Aug. 6.—Activity in cold-rolled strip is expanding, somewhat offsetting lighter demand for hot-rolled material. For some producers current cold-rolled business is described as the best in six months, with demand diversified. With improved activity has come a stronger stand on prices and 2.85c, which practically had disappeared a few weeks ago, is more frequently named on small lots. Most business still is going at 2.75c, however. Backlogs of hot-rolled strip are close to the lowest level of the year, mills now being able to effect delivery of two weeks on some sizes. Incoming business compares unfavorably only with preceding months, still being of heavy seasonal proportions. Hot strip continues 1.90c and 2.00c, Pittsburgh, according to size.

Cleveland, Aug. 6.—July was better than June for shipments of hot and cold rolled strip, several important makers report. A feature of the market is the strength of cold strip, some mills now quoting 2.85c, base, Cleveland or Pittsburgh, on all except the largest tonnage, while one or two makers will not quote less than 2.85c on any tonnage. Hot strip continues 1.90c to 2.00c, Pittsburgh, for wide and narrow widths, respectively.

Cold Finished Steel

Activity Shows Gain Over Rate of a Year Ago

Pittsburgh, Aug. 6.—Activity in cold-finished steel bars and shafting continues to show gains over the rate of a year ago. July shipments and incoming business were approximately the same as in June and specifications this month are keeping pace. Demands from automotive interests show little change. The market is firm at 2.30c, Pittsburgh.

Cleveland, Aug. 6.—Current business in cold-finished bars shows a tendency to taper, as users have covered for third quarter. Shipments on contracts are holding up satisfactorily.

Detroit, Aug. 6.—Cold finished bar specifications, while somewhat lighter, seem to be holding better than for other finished products. Airplane requirements account for a fair and an increasing portion of the business. Makers quote 2.30c, Chicago, or 2.575c, delivered Detroit.

Wire

July Sales Better Than June For Some Makers—Nails Are Weakest Item

ACTIVITY in wire, particularly for manufacturers, has seen little decline and July brought more business than June to some makers. Nails offer a contrast and are slack to an extent that concessions of $2 per keg are being given. Wire prices have shown no weakness. Automotive demand has held better than had been expected earlier in the season.

WIRE PRICES, PAGE 342

Pittsburgh, Aug. 6.—The wire market is in contrast to the situation in nails, both as to demand and prices. Incoming wire tonnage last month for most producers bettered figures for June and for July, 1928, and activity is well sustained so far in August Nails and fencing material, however, slumped during the past 30 days. Wire demands of automotive interests reflect the seasonal letdown in that industry but are heavy for midsummer. Wire prices are steady at 2.50c to 2.60c. Nails have softened under the influence of light demand, however, and in certain sections, concessions of $2 a ton are being made from the $2.65 price to large jobbers and the $2.75 dealer figure.

Worcester, Mass., Aug. 6.—Wire continues active, receding a trifle from its position of early summer but looking forward to heavy fall and winter demand. Production is about 80 per cent of capacity. Prices are stable on a basis of 2.75c, Worcester, for plain bright wire to dealers.

Cleveland, Aug. 6.—Demand for merchant wire for manufacturers is fairly active, and the market here is firm, though some concessions are noted in prices in nearby territory. Orders for barbed wire are rather slow, and demand for nails is quiet.

Detroit, Aug. 6.—Wire products' prices are not strong. This is due more to inter-company competition than to marked lessening in demand, although the decline is probably 30 per cent from the spring peak. Nail demand at the height of spring building activity was considerably below five years ago, indicating perhaps a permanent recession. Wire nails especially are weak in price, the delivered range being $2.785 to $2.885. Delivered price on manufacturers' wire is 2.635c. Cement coated nails are especially weak.

Chicago, Aug. 6.—Demand for manufacturers' and merchants' wire continues fair. Mills also are receiving a fair volume of business for electrical wire and from fencing manufacturers. Wire nails are being purchased in slightly greater volume by jobbers, but nail mills are unable to operate at better than 50 per cent.

Philadelphia, Aug. 6.—The nail market continues its downward tendency and $2.55, base, Pittsburgh. now is the general price to jobbers. Wire, however, continues firm at 2.50c, base, Pittsburgh, with demand brisk.

Nonferrous Metals

Buying of Copper and Lead Increases While Prices Appear Firmer—Zinc Market Quiet—Tin Sales Light but Quotations Steady

Prices of the Week, Cents a Pound

	Copper—Electro delivered	Copper—Lake delivered	Copper—Casting refinery	Straits Tin New York Spot	Straits Tin New York Futures	Lead New York	Lead East St. Louis	Zinc St. Louis	98-99% Aluminum	Spot Antimony	Ingot Nickel
July 31	18.00	18.07½	17.50	47.25	48.00	6.75	6.55	6.80	23.90	8.55	35.00
Aug. 1	18.00	18.07½	17.50	47.00	47.75	6.75	6.55	6.80	23.90	8.55	35.00
Aug. 2	18.00	18.07½	17.50	47.12½	48.12½	6.75	6.55	6.80	23.90	8.55	35.00
Aug. 5	18.00	18.07½	17.50	47.25	48.12½	6.75	6.55	6.80	23.90	8.55	35.00
Aug. 6	18.00	18.07½	17.50	47.12½	48.00	6.75	6.55	6.80	23.90	8.55	35.00

NEW YORK, Aug. 6.—Buying of copper and lead increased in the past week to the largest totals in a long time. Prices of these metals accordingly appeared firmer. Sales of other metals were quiet.

Some buying of brass and copper products is in progress, mostly for early shipment. Mills are able to give comparatively quick shipments on most products. Some of the special sizes of tubing require longer than a few weeks, and magnet wire still is practically sold out on most grades, for months in advance. Utility companies are inquiring for copper wire somewhat more actively.

Copper—Large business was done in the domestic and export markets in the past week but prices remained unchanged. This was the first week in which domestic sales were large in a long time. It was the most active sales week for the market as a whole since March. Most buying was for August shipment. Some metal was wanted immediately. All of the large producers returned to the market, but generally they let the customers come to them.

Zinc—Prime western continues in an extremely quiet market. Not much new business has been done since the middle of July. The price, however, has remained remarkably steady due mostly to the unusual way in which the ore market has remained at $44 a ton since the end of March. The uniformity of the Joplin ore market has been due to the influence of the sales agency in the Tri-State district. Stocks of slab zinc in the hands of producers in the United States increased 7190 tons, or nearly 20 per cent, during July. This was caused by a sharp decline in total shipments. The daily average rate of zinc production was only nine tons less in July than in June. Total output last month, however, was 1488 tons larger than in the preceding month, June being a short month.

Tin—Buying has been light. Prices have been unusually steady. July statistics showed an increase in the world visible supply of 38 tons. The total was 774 tons smaller than at the beginning of the year but 5700 tons larger than a year ago. It is difficult to tell whether hidden stocks have played a part in keeping the supply down. Consumption of tin has been remarkably heavy. Domestic shipments last month were 6865 tons.

Lead—Buying has been large for August and September shipments by all classes of users. The tone of the market is much stronger.

Aluminum—Buying is light and shipments show a seasonal falling off. The price situation, however, is firm and unchanged.—*Daily Metal Trade.*

L. S. Guetti Tool Co., Indianapolis, has increased directors from three to seven.

Mill Products

Base price cents per pound f.o.b. mill, except where otherwise specified

SHEETS	
Yellow brass (high)	23.25
Copper, hot rolled	27.75
Lead, full sheets (cut ¼c more)	10.00
Zinc sheet (100-pound base)	$10.25
Zinc strip (100-pound base)	$9.25
Aluminum, flat sheets, up to 10 gage, 3 to 72 inches wide	31.30
SEAMLESS TUBE	
Yellow brass (high)	28.25
Copper	29.25
RODS	
Yellow brass (high, full turnings)	21.25
Naval brass	24.00
WIRE	
Copper	19.87½
Yellow brass (high)	23.75

Old Metals

Dealers' buying prices, cents per pound

HEAVY RED BRASS	
New York	12.00 to 12.50
Chicago	11.50
Cleveland	12.50 to 13.00
HEAVY YELLOW BRASS	
Cleveland	8.50 to 9.00
ZINC	
New York	3.25 to 3.50
Cleveland	3.25 to 3.50
HEAVY COPPER AND WIRE	
New York	14.25 to 14.50
Boston	13.50 to 14.00
Chicago	12.50
Cleveland	13.50 to 14.00
RED BRASS BORINGS	
New York	11.00 to 11.50
YELLOW BRASS TUBING	
Cleveland	8.50 to 9.00
LIGHT COPPER	
New York	12.25 to 12.50
Chicago	11.50
Cleveland	12.50 to 13.00
LIGHT BRASS	
Boston	6.25 to 6.50
Chicago	7.50 to 8.00
Cleveland	6.50 to 7.00
ALUMINUM	
Clippings, Cleveland	17.50 to 18.00
Borings, Cleveland	9.00 to 9.50
Cast, Cleveland	12.00 to 12.50
Cast, Boston	10.00 to 10.50

Secondary Metals

Remelt aluminum No. 12	17.00 to 17.50
Brass ingot, 85-5-5-5	15.75 to 16.00

Coke By-Products

Spot Phenol Commands Premium—Benzol Production Is Heavy

New York, Aug. 6.—Light oil distillate prices are steady. Domestic demand is brisk and what little available supplies are noted in the market find a ready demand for export. Production of benzol is steady and heavy for this period. Toluol supplies are low and shipments against contracts keep the market clear of stock. Much the same condition prevails in solvent naphtha and commercial xylol. Coal tar crudes are generally in a strong position.

Coke Oven By-Products

Per Gallon at Producers' Plant in Tank Lots

	Spot
Pure Benzol	$0.23
90 per cent benzol	0.23
Toluol	0.40
Solvent naphtha	0.30
Commercial xylol	0.30
Per Pound at Producers' Plants in 250-Pound Drums	
Phenol	0.16 to 0.17
Per Pound at Producers' Plants	
Naphthalene flakes	0.05½ to 0.06½
Naphthalene balls	0.06½ to 0.07½
Per 100 Pounds Delivered	
Sulphate of ammonia	$2.20 to 2.25

Some premium prices are reported paid for available spot stocks on phenol, 18.00c a pound for small quantities in the opening market. Some producers are behind in delivery despite large production. Bakelite manufacturers have been heavy purchasers. Shipments against contracts are heavy and on such business 16.00c per pound, producers' plants, continues to cover the bulk of business.

Naphthalene in flakes and balls is unchanged with shipments good.

Mercury Strong at $124

New York, Aug. 6.—Quicksilver is strong at $124 to $126 a flask. Demand is active and spot supplies scarce. Any further increase probably would bring better supplies from Europe though the market over there is closely controlled.

Warehouse

Blue Annealed Sheet Demand Good in Most Districts—July Selling Exceeded Year Ago —Construction Work Gives Impetus

DEFERRED mill deliveries in sheets, especially blue annealed, are an aid to warehouse sales. In most districts July sales topped those of July, 1928. August demand thus far is seasonally high. Prices are generally unchanged.

New York—August warehouse business has started off particularly brisk with sharp improvement in demand for blue annealed sheets. This product lately has been a weak spot but buyers evidently are having difficulty getting shipments from mills. Structurals continue to move well.

Detroit—Warehouse sales are running ahead of last year, but warehouses have not benefited to the extent hoped from record auto production. Products most in demand are bars, bar shapes and blue annealed sheets. Tool steel sales are light, as dies for new models are generally completed. Prices are unchanged.

Buffalo—July sales of iron and steel warehouses were fully as good as for July, 1928, the latter having been one of the best months of that year. Sales are well distributed both as to consumers and materials. The August outlook is favorable.

Pittsburgh—Warehouse sales retain most of their recent activity. Current buying shows little change from the rate of 30 days ago and compares favorably with the volume for the corresponding period of last year. Sheets continue fairly active, and bars and plates are receiving a fairly steady call. Prices are fairly well maintained.

Cincinnati—New business of district warehouses is in fair volume for this season. Decline in building activity is expected to retard warehouse activity during this month. Prices, however, are firm.

St. Louis—Warehouse business here is spotted and irregular, with average conditions since Aug. 1 making a less favorable showing than in July. Extreme high temperatures are among contributing causes. Outlet through building industry has narrowed further, except highway construction, river improvement work and municipal improvements. Implement manufacturers continue fair purchasers. Two jobbers report betterment in demand for wire and wire products, except nails. Sales of certain sizes of tubing and bars have picked up.

Philadelphia—Jobbers here report a falling off in sales thus far in August, but prices continue firm and unchanged.

Warehouse Quotations in Cents Per Pound at Leading Market Centers

STEEL BARS

Baltimore	3.25c
Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.00c
Ft. Worth	3.75c
Houston	3.00c
Los Angeles	3.30c
New York††‡‡	3.25c
Philadelphia*	2.80c
Pittsburgh	2.90c
Portland	3.00c
San Francisco	3.15c
Seattle	3.15c
St. Louis	3.15c
St. Paul	3.25c
Tulsa	3.75c to 4.04c

IRON BARS

Baltimore	3.25c
Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Detroit	3.00c
Ft. Worth	3.75c
New York††	2.80c to 3.24c
Philadelphia*	2.80c
St. Louis	3.15c
Tulsa	3.75c to 4.04c

REINFORCING BARS

Baltimore	3.31c
Boston	3.265c to 3.50c
Buffalo	2.95c
Cincinnati	3.15c
Cleveland	2.25c to 2.44c
Detroit	2.30c to 3.00c
Ft. Worth	3.50c
Houston	3.00c
Los Angeles cl.	2.65c
Los Angeles, lcl.	3.00c
New York	2.90c to 3.30c
Philadelphia	2.75c to 3.10c
Pittsburgh	2.90c to 3.175c
San Francisco cl.	2.00c
San Francisco lcl.	2.25c
Seattle	3.00c
St. Louis	3.15c
Tulsa	3.75c to 4.00c
Youngstown	2.30c to 2.60c

STRUCTURAL SHAPES

Baltimore	3.25c
Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland	3.00c
Detroit	3.10c
Ft. Worth	4.00c
Houston	3.25c
Los Angeles	3.30c
New York†††‡‡	3.25c to 3.30c
Philadelphia*	2.70c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.15c
Seattle	3.15c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.75c to 4.14c

PLATES

Baltimore	3.25c
Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland, ¼-in. and thicker	3.00c
Cleve., 3/16-in.	3.20c
Detroit	3.10c
Detroit, 3/16-in.	3.10c
Ft. Worth	4.00c
Houston	3.00c
Los Angeles	3.30c
New York‡‡	3.30c
Philadelphia*	2.70c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.15c
Seattle	3.15c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.75c to 4.14c

NO. 10 BLUE ANNEALED

Baltimore	3.60c
Boston 3/16-in.	3.915c
Buffalo	3.50c
Chicago	3.35c
Cincinnati	3.45c
Cleveland	3.25c
Detroit	3.35c
Ft. Worth	4.50c
Houston	3.90c
Los Angeles	4.00c
New York‡‡	3.70c to 3.90c
Portland	3.75c
Philadelphia*†	3.25c
Pittsburgh**	3.35c to 3.45c
San Francisco	3.80c
Seattle	4.00c
St. Louis	3.45c
St. Paul	3.75c
Tulsa	4.20c to 4.34c

NO. 24 BLACK SHEETS

Baltimore*†	3.75c
Boston	4.85c
Buffalo	4.20c
Chicago	4.05c
Cincinnati	4.05c
Cleveland***	3.75c to 3.90c
Detroit	3.95c
Ft. Worth	4.70c
Los Angeles	4.90c
New York	3.90c to 4.00c
Philadelphia*†	4.10c
Pittsburgh**	3.85c
Portland	4.90c
San Francisco	4.90c
Seattle	5.00c
St. Louis	4.25c
St. Paul	3.89c
Tulsa	4.34c

NO. 24 GALVANIZED SHEETS

Baltimore*†	4.50c
Boston	5.60c
Buffalo	4.70c to 4.85c
Chicago	4.90c
Cincinnati	4.90c
Cleveland***	4.60c to 4.75c
Detroit	4.75c
Ft. Worth	5.50c
Houston	5.40c
Los Angeles	5.30c
New York	4.60c to 4.75c
Philadelphia*†	4.85c
Pittsburgh**	4.85c to 4.95c
Portland	5.50c
San Francisco	5.30c
Seattle	5.50c
St. Louis	5.10c
St. Paul	4.68c
Tulsa	5.10c to 5.35c

BANDS

Baltimore	4.00c
Boston	4.015c to 5.00c
Buffalo	3.65c
Chicago	3.20c
Cincinnati	3.50c
Cleveland	3.25c to 3.65c
Detroit 3/16-in. and lighter	3.30c
Ft. Worth	4.25c
Houston	3.65c
Los Angeles	4.15c
New York‡‡	3.75c
Philadelphia*	3.30c
Pittsburgh	3.25c
Portland	4.00c
San Francisco	3.75c
Seattle	4.00c
St. Paul	3.50c
Tulsa	4.50c to 4.69c

HOOPS

Baltimore	4.00c
Boston	5.50c to 6.00c
Buffalo	4.05c
Chicago	3.75c
Cincinnati	4.05c
Cleveland	3.25c to 3.65c
Detroit, No. 14 and lighter	3.80c
New York‡‡	4.25c
Philadelphia*	3.55c
Pittsburgh	4.25c
Seattle	5.00c
St. Paul	4.00c

COLD FINISHED STEEL

	Rounds, hexagons, squares	Flats, squares
Baltimore (c)	3.50c	(a) 4.00c
Boston	3.55c	4.05c
Buffalo	3.95c	4.45c
Chicago	3.60c	4.10c
Cincinnati	3.85c	4.35c
Cleveland	3.65c	4.15c
Detroit	3.85c	4.35c
Los Angeles (a)	4.50c	.....
New York	3.60c	4.10c
Philadelphia*	3.60c	4.10c
Pittsburgh	3.70c	4.20c
Portland (a)	4.50c	.....
San Fran. (a)	4.25c	.....
Seattle (a)	5.00c	.....
St. Paul (a)	3.85c	.....
Tulsa	4.64c	5.14c

(a) Rounds only.

COLD ROLLED STRIP

Boston, 0.100-inch, 500 pound lots	5.30c
Buffalo	5.85c
Chicago (b)	6.10c
Cincinnati	7.15c
Cleveland (b)	5.95c
Detroit	5.80c
New York	5.15c
Philadelphia (c)	5.15c

(b) Net base, straightening, cutting, boxing 1 ton or more.
(c) Plus mill, size and quantity extras.

SWEDISH IRON AND STEEL

New York duty paid

Hollow drill steel	13.00c
Iron bars, round	6.10c
Iron bars, flats and squares	6.50c

*Plus quantity differentials. ‡‡Minus quantity differentials. ††Domestic bars. **Less than 25 sheets. *†50 or more bundles. ***Less 0.15c where more than 10 bundles are ordered at once for delivery at one time.

Pacific Coast

Pipeline Award at Seattle Requires 3800 Tons of Plates—Much Is Pending

PLACING of 3800 tons of plates for a pipeline at Seattle was the largest letting of the week. A similar project at Everett, Wash., calls for a large plate tonnage, bids being imminent. Activity is undiminished and many projects are close to closing. Effect of possible entry of the Steel corporation to coast production is being discussed by the industry.

Seattle, July 31.—Some branches of the iron and steel trade report business slow in the Pacific Northwest but conditions as a whole are better than normal. The weeks awards in this territory approximate 5000 tons and several important projects involving considerable tonnage are immediately pending. Prices are holding steady.

Northern Pacific railroad has awarded to the Baldwin Locomotive Works a $2,000,000 contract to build twelve of the largest size steam locomotives.

Pig Iron and Coke

No improvement is reported by the foundry industry, competition being strong. Stocks of pig iron and coke are ample for present requirements and buying is at a low ebb. Prices are unchanged. Foundries find Portland competitors bidding on work here at unusually low levels.

Coast Pig Iron Prices

Utah basic	$25.00 to 26.00
Utah foundry	25.00 to 26.00
*German	24.25
*Indian	25.00 to 26.00

*C.i.f. duty paid.

Bars, Plates and Shapes

Mill prices on plates, shapes and bars are firm and unchanged at 2.35c, while reinforcing steel is holding its own at 2.30c.

Reinforcing specifications are unimportant at the moment and local mills have been booking small tonnages, mostly car lots, in recent weeks. Operations are unchanged. Northwest Steel Rolling Mills took 100 tons for the Tacoma avenue state highway. British Columbia Concrete Co. Ltd., was given the contract for furnishing steel reinforced concrete pipe for a water supply system at Erickson, B. C., on a bid of $82,500.

Contract for the Maple Leaf pipe line was formally awarded by Seattle to J. L. Smith Construction Co. This involves 5½ miles of 54-inch lock bar pipe, which will be fabricated by the Western Pipe & Steel Co., totaling 3800 tons of plates. Bremerton will receive bids Aug. 7 for a line involving about 3500 tons of plates and tenders for a similar project at Everett will be called soon. Seattle rejected bids this week for the Cedar River pipe job, involving 500 tons of plates.

No large structural jobs were awarded in Seattle this week but Poole & McGonigle took an office building project at Portland calling for 700 tons. Lindstrom & Feigenson, on a second call for bids, were awarded the contract for the East Thirty-third street viaduct, Portland, said to call for about 250 tons. J. J. Badraum has the general contract for a bridge at Tillamook, Oreg., involving 105 tons of steel. Pacific Bridge Co. has the contract for a steel bridge at Portland for the Columbia Beach Development Co., tonnage unstated.

Finished Materials

Jobbers report that while mill buying is slack out of stock turnover continues steady, the month's totals being ahead of last year. Demand for sheets has improved but it is still below normal. Prices are steady and unchanged.

Ballard Drop Forge Co. has the contract for furnishing six tons of small, steel bands for a wood water pipe job at Vancouver, B. C.

Seattle will open bids Aug. 23 for furnishing taintor gates and hoists for the Diablo dam project. Seattle is also calling for three special steel layouts for the street railway. Bids will be received in late August by the British Columbia Electric railway for a large turbine and about two miles of steel pipe for the Jordan river hydroelectric job.

Old Materials

Steel scrap is arriving in quantities equal to present consumption at local mills, prices being unchanged at $10 and $11, gross. Japanese buyers continue interested in good grades. Cast iron scrap is weak due to poor demand. Sales have been made at $12, net, but $13 is considered a fair average.

Summer Lull Apparent

San Francisco, Aug. 3.—(*By Air Mail*)—The usual mid-summer lull is noted in demand for iron and steel products and awards and new inquiries are limited. Coast consumers are wondering just what the effect on the market will be if the United States Steel Corp. takes advantage of the 90-day option on Columbia Steel Corp. properties.

Foreign importations of iron and steel products on the Pacific during April, figures for which have just been received, were, for the major items, in tons, as follows;

	Apr. 1929	Mar. 1929	Apr. 1928
Coke	3436	2624	3818
Cast Iron Pipe	1148	2518	1925
Tubular Products	606	3280	4907

Pig iron importations were the smallest of the year, totaling 438 tons. Importations of bars and structural shapes during April fell below the totals for the same month a year ago.

Pig Iron and Coke

Little improvement is noted in demand for foundry iron or coke and sales continue to involve unimportant lots. No large inquiries are current. During the past week one importer has delivered approximately 4000 tons of English byproduct and beehive coke to various consumers, this material being applied against contracts placed some time ago. No change in prices is noted.

Bars, Plates and Shapes

Concrete bar awards this week compared favorably with average weekly lettings for the year and totaled 1853 tons. Important contracts included 600 tons of bars and 400 tons of wire mesh for the ammunition depot at Hawthorne, Nev., placed with the Truscon Steel Co., 205 tons for a bank in Beverly Hills, secured by Soule Steel Co., and 130 tons for a college building at Reno, booked by Truscon Steel Co. No further development has occurred on the preliminary inquiry for 14,000 tons for a pipe line at Phoenix. Bids have been taken by the General Petroleum Corp., Los Angeles, for two 60,000-barrel tanks, involving 460 tons. Prices remain unchanged at 2.35c., c.i.f.

Awards of structural shapes aggregated 408 tons and were the smallest for any week since January. So far this year 121,144 tons have been placed, compared with 87,333 tons for the same period last year. Bids are being taken on 300 tons for a store in San Francisco. Plain material is firm at 2.35c, c.i.f.

Other Finished Material

The weekly total of cast iron pipe this week was the smallest in nearly two years and did not exceed 100 tons. New inquiries include 199 tons for Alturas, Calif. The Southern Counties Gas Co., Los Angeles, will furnish contractors with 65,000 feet of 12¾ inch outside diameter pipe for installation near Laguna, Calif.

Control Formally Passes

St. Louis, Aug. 6.—Formal passing of the Commonwealth Steel Co.'s plant at Granite City, Ill., to General Steel Castings Corp., Philadelphia, is evidenced by the filing of deeds. The General Steel Castings Corp., which is constructing a plant at Eddystone, Pa., a suburb of Philadelphia, will operate the Granite City works as a western branch.

Production of thin sheets in Japan in first quarter of 1929 was 42,585 tons, compared with 24,848 tons in first quarter of 1928.

Bethlehem Makes Report To Its Employes

Bethlehem Steel Corp.'s future success was never better assured than it is today, according to Eugene G. Grace, president, in a statement to the company's employes. Mr. Grace's statement is included in a report covering the annual conferences, just concluded between the management and representatives of employes. Mr. Grace attributes this outlook largely to recognition of the importance of a co-operative relationship between employer and employe.

The steel industry as a whole is experiencing the greatest demand in its history, Mr. Grace said. Bethlehem has been operating for many months under a demand in excess of its rated capacity. New records are being established largely because the company more than five years ago undertook a program of rebuilding and rounding out its plants which enabled it to meet this demand, according to Mr. Grace, who said:

After 25 years, Bethlehem today occupies a new position of financial security and commercial leadership. The company's progress has not only enabled us to provide steadier work for our employes than at any time in recent years, but also to resume dividends to our common stockholders after five years interruption.

In part, at least, the gratifying results which have been achieved thus far may be attributed to those activities which are jointly operated by employes and management, namely, employe representation, savings and stock ownership, pensions, relief, accident prevention, home ownership aid, etc.

Pig Iron

(*Concluded from Page* 343)

sold a fair tonnage of 2.75 to 3.25 per cent silicon iron to an Iowa melter at $21, furnace.

All sales reported in the week totaled approximately 8500 tons, of which the St. Louis Gas & Coke Corp. booked 500 tons, including 3800 tons of foundry for an Indiana automobile manufacturer.

Birmingham, Ala., Aug. 6.—Southern iron may be shipped in larger tonnage to Atlantic coast points. With the reduction in freight rates. All railroads out of Birmingham, except those without lines to the Atlantic, have announced facilities for handling the iron under the new rate. A little impetus is already noted in the movement to the East other than the basic iron which has been shipped to Penvoyd, Pa., and elsewhere. Makers say their price of foundry iron is $14.50, base, Birmingham, in the home territory, with $14 for shipment to the North, though reports of concessions from the latter price are not denied. Freight charge reductions range from 76 cents to $1.16 a ton, to Baltimore, Philadelphia, New York and also to Boston.

Toronto, Ont., Aug. 6.—A steady flow of small orders is noted in the Canadian pig iron market. The civic holiday Aug. 5 had some effect on business in the Toronto district. Prices are firm.

Chicago, Aug. 6.—August shipments of northern pig iron will exceed those of July. The majority of consumers have covered for third quarter, but some interest is evidenced in the fourth quarter. Makers see no letdown for the remainder of the year. Prices are firm. Scattered sales of southern iron indicate $13.50, base, Birmingham, is the price applying in competitive territory. Southern iron has disturbed St. Louis furnaces more than those in Chicago district, making St. Louis iron more competitive with Chicago. This is being done without weakening the Chicago price situation. Inquiries are good. Gray iron foundries are doing well. The only weak factor is with the radiator makers, due to a dearth of home construction.

Philadelphia, Aug. 6.—Additional orders for basic iron increase the total placed in this district in the past week to about 20,000 tons, all with eastern Pennsylvania furnaces. A rumor that southern makers participated in this business is unfounded. Scattered buying features the foundry iron market, and the total is small. Sun Shipbuilding Co. placed 500 tons of iron, Pennsylvania railroad purchased some tonnage for Altoona, Pa., Lobdell Car Wheel Co., several hundred tons, and the Kennedy Foundry Co., Baltimore, several hundred tons. Eastern Pennsylvania foundry iron now is generally $21, base, furnace, and this price has been shaded on some occasions.

Sheets Set New Record in Production

(*Concluded from Page* 349)

15 weeks. A four to five-week backlog is noted for black and galvanized sheets. In the immediate Chicago area prices on all grades are firm. Mills here are less inclined to quote on the heavier gages of blue annealed sheets in competition with continuous mills. In the South and Southwest the lighter gages of galvanized sheets are weak. In the Chicago market mill quotations are 3.05c for No. 24 black, 3.80c for No. 24 galvanized, and 2.45c for No. 13 blue annealed sheets, with blue annealed plates 2.30c, base.

St. Louis, Aug. 6.—Hot weather has slowed activities at sheet mills but new orders are coming in as well as expected, and specifications are satisfactory. Current price specifications are unchanged.

Philadelphia, Aug. 6.—While sheet demand does not reflect as many large tonnages as in the past few months the total continues sufficient to enable mills to maintain good backlogs. Deliveries of light gage blue annealed are difficult to obtain in less than four to six weeks, while heavy gages are sold up for two to four weeks. Black and galvanized are sold up for three weeks or more. Prices generally are steady, although concessions are made occasionally on exceptionally good tonnage.

Operating Rates

Chicago Retains 98, Pittsburgh 90 to 95, Valley Shows Drop

Chicago—Ingot production rate of steel mills in this area continues nominally at 98 per cent. Practically, the industry here is running at capacity, although most of the finishing mills are handicapped by hot weather and are operating on an 80 to 85 per cent basis. Rail mills are at 75 per cent and wire mills are running at approximately one-half capacity. No change is noted in blast furnace operations, 29 of the 36 stacks being in blast.

Pittsburgh—Despite a lessening in pressure for finished steel and with production of some smaller mills reduced, ingot operations are rated from 90 to 95 per cent. Schedules of finishing mills continue to vary according to weather conditions, although the number of turns lost during the past week was not excessive. Sheet mills are scheduled for around 95 this week, with tin plate production slightly lower at 90 per cent. Operations of strip mills are down slightly at 90 to 95 per cent. Pipe mills are unchanged at 65 to 75 per cent for seamless and 60 to 65 for welded.

Youngstown, O.—Some recession in steelworks activities is noted in this district this week, not an unexpected condition for seasonal reasons. Generally, the rate of operations is 84 to 85 per cent, against about 90 per cent last week, but fully 15 per cent higher than a year ago. Two open-hearth units went out for repairs, making 44 active out of a total of 51. Bessemer operations are unchanged, however. Independent steel bar mills are 75 per cent and the Carnegie Steel Co. continues at 90. Independent sheet mills have 105 units operating out of 120, against 113 last week. Tin mill and strip operations continue at capacity. One less wrought pipe unit is active this week, leaving 13 units active out of a total of 21 welded, seamless and electric units here. The Girard puddling mill is 100 per cent active in its finishing department and 60 per cent in its puddling.

Buffalo—Open-hearth production continues as high as physical operating conditions will permit. Thirty-three furnaces were making steel in the district this week, with four undergoing repairs. Finishing mill operations have been restored to a high point with the arrival of a moderate temperature.

Corp. Options Columbia

New York, Aug. 6.—The United States Steel Corp. has received a 90-day option for the purchase of the Columbia Steel Corp., San Francisco. The terms of purchase, if the option is exercised, were not disclosed. The announcement was issued by Columbia Steel officials.

Trucson Steel Co., of Youngstown, O., has been granted tax refunds amounting to $81,627.37 by the bureau of internal revenue, Washington.

Society To Participate in Foreign Meetings

The next annual convention of the American Institute of Steel Construction Inc. will be held in Biloxi, Miss., at the Edgewater Gulf hotel, beginning Wednesday, Nov. 13, and continuing until Saturday, Nov. 16. An international conference on steel construction, to be held in Liege, Belgium, in August, 1930, has been announced by the institute. This conference has been called in conjunction with an exposition on steel and has been arranged under the auspices of the Belgian government.

The institute also has been invited by the German steel syndicate, Stahlwerks-Verband, to participate in a large international conference on steel construction to be held at Dusseldorf about the same date. These conferences will be attended by structural engineers of the leading nations of the world.

Inland Earnings Higher

Chicago, Aug. 6.—Inland Steel Co. reports net earnings for itself and subsidiaries for second quarter increased 22 per cent and first half more than 26 per cent over the similar periods of 1928. Net income for second quarter was equal to $2.60 per share for second quarter, compared with $2.50 per share for first quarter and $2.12 per share for second quarter of 1928. For first half earnings were $5.11 per share, compared with $3.88 per share for first half of 1928. Income account for second quarter is as follows:

	1929	1928	1927
Operating income	$4,563,551	$3,928,047	$3,337,904
Depreciation and depletion	698,892	657,267	624,122
Interest	330,750	392,500	170,688
Federal tax	407,000	328,000	328,000
Net income	$3,126,000	$2,550,280	$2,215,094

For first half the income account is:

	1929	1928	1927
Operating income	$8,982,015	$7,370,562	$6,584,989
Depreciation and depletion	1,375,614	1,290,100	1,242,343
Interest and federal tax	1,472,250	1,238,740	996,626
Net income	$6,134,151	$4,841,722	$4,346,020

Institute Publishes 1928 Statistical Report

The American Iron and Steel institute announces the publication of its Annual Statistical Report for 1928. This book contains complete statistics of the iron and steel industry of the United States and Canada for 1928 and prior years; also foreign statistics for leading countries for iron ore, pig iron and ferroalloys, and steel ingots and castings from 1900 to 1928 so far as available; also an analysis of the tonnage of iron and steel products exported, showing exports for the years 1924-1928.

The report contains 125 pages and can be supplied by IRON TRADE REVIEW, Cleveland. Its price, bound in cloth, is $5 postpaid.

Council Metals Section Plans Congress

Metals section of the National Safety council will meet at the Stevens hotel, Chicago, Sept. 30-Oct. 4, at the eighteenth annual congress of the safety council. The program which has been arranged by this section is as follows:

Monday, Sept. 30

Reports of officers and committee chairman.
Roll call of members.
Address by Dr. Harry Myers, superintendent of personnel, Frigidaire Corp., Dayton, O.

Tuesday, Oct. 1

Address by George Seyler, works manager, Lunkenheimer Co., Cincinnati.
"Outstanding Facts from National Safety Council Statistical Reports," by J. E. Culliney, safety engineer, Bethlehem Steel Corp., Bethlehem, Pa.
Election of officers.
Report of the foundry research committee, presented by F. G. Bennett, safety director, Buckeye Steel Castings Co., Columbus, O.

Wednesday, Oct. 2

Address by Phillip Stremmel, general superintendent, Granite City Steel Co., Granite City, Ill.
Report of safe practices committee, presented by J. M. Woltz, safety director, Youngstown Sheet & Tube Co., Youngstown, O.
"Progress in Gas Welding Safety," by H. S. Smith, Union Carbide Co., New York.

Thursday, Oct. 3

Presentation of iron and steel safety contest trophy.
A Safety Playlet—cast to be announced later.
"Safety Kink in the Metals Industry," with illustrative film strip, by John A. Oartel, chief of safety bureau, Carnegie Steel Co., Pittsburgh.
General round table discussion.

Tariff Rates Still Are Official Secret

Washington, Aug. 6.—No official announcement concerning rates in the metals schedule of the tariff bill has been made by the senate finance committee, but the rumor still persists that the duty on pig iron has been increased to $1.50 per ton and that the 1 cent a pound duty on manganese ore will be effective with a 10 per cent content instead of 30 per cent.

Doubt still is expressed that the senate revision of the house tariff measure will be completed when the senate convenes Aug. 19.

Import Much Chrome Ore

Philadelphia, Aug. 6.—Imports at this port in the week ending Aug. 3 included 2500 tons of chrome ore from Portuguese Africa, 6 tons of steel scrap from the United Kingdom, 36 tons of ferrochrome from Switzerland and 89 tons of shapes from Germany.

New and Novel Designs at Cleveland Show

According to advance information, the most complete range of machine tools, equipment and accessories ever assembled will be on display in the 1929 National Machine Tool Builders' exposition, which will occupy the west annex, arena and arcade of the Cleveland public auditorium, Sept. 30-Oct. 4.

The show is sponsored by the National Machine Tool Builders' association, officers of which are as follows: President, Henry Buker, Brown & Sharpe Mfg. Co.; first vice president, H. E. D. Gray, Landis Tool Co.; second vice president, C. C. Swift, Ohio Machine Tool Co.; treasurer, August H. Tuechter, Cincinnati Bickford Tool Co., and general manager, Ernest F. DuBrul.

In direct charge of the 1929 exposition is the following committee on exposition of the association: Chairman, J. Wallace Carrel, Lodge & Shipley Machine Tool Co.; P. E. Bliss, Warner & Swasey Co.; Ralph E. Flanders, Jones & Lamson Co.; Robert M. Gaylord, Ingersoll Milling Machine Co.; James E. Gleason, Gleason Works, and ex-officio, Henry Buker.

Launch New Methods of Sales Promotion

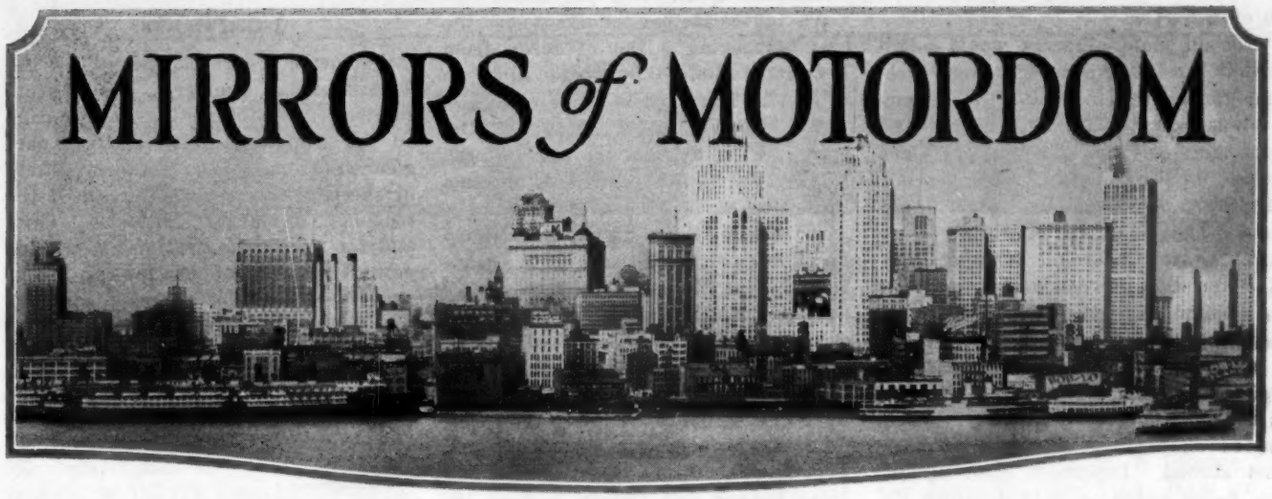
As an initial step in the development of broader markets for structural steel, the American Institute of Steel Construction Inc. is drafting the sales representatives of constituent member firms into service. This, it is believed, is the first time a national trade association has undertaken this method of sales promotion work.

In a circular prepared by the institute, a report of the organization meeting of the advisory committee in the New York district is given. This committee which consists of sales executives of fabricators of structural steel in that district will deal directly with executives of the American Institute of Steel Construction.

Among subjects considered at the New York organization meeting was the development of a market for steel framed residences, and the utilization of steel in the erection of hangars, bridges and irrigation dams. Technical problems dealing with the development of a steel plate floor system, known as the battle-deck floor, were discussed at length.

Detroit Steel Products Co., Detroit, has been awarded the contract for steel windows and doors at the new Detroit municipal hangar.

MIRRORS of MOTORDOM



Record Auto Output Not Without Quota of Grief

* * * * * * * * *

Ford Competition Severe; Speed New Steelworks

Detroit, Aug. 6

MEASURED in terms of production, the seven months ended July 31 have set a record, an overwhelming record, for the automotive industry. For its unprecedented output and its best peacetime earnings the steel industry can thank the motor car, from its primary production to its servicing. Many other industries, including the parts makers, can make like acknowledgment.

But in many ways those seven months have not been particularly happy for the automotive industry. Despite their enlarged output, the proportion of many manufacturers to the total has not increased. Earnings have bulked larger, but for a number the profit per car has declined, or if it has been maintained it has been at the sacrifice of quality.

Stock market quotations of the common and preferred shares of seven important manufacturers—General Motors, Chrysler, Packard, Nash, Hudson, Studebaker and Willys-Overland—have shrunk $850,000,000 this year, one financial authority calculates. This does not impair the real value of these corporations, but such a judgment is not encouraging. And there are few automotive executives who are not "in the market."

Chrysler common stock in the first half year was as high as $135 and can now be bought for $75. Graham-Paige is about $26, compared with a high of $54, Nash at $90 against a top of $118, Hupp at $42 almost half its peak of $82, Willys-Overland at $24 is off 50 per cent, and so on.

* * *

THE reasons for this showing are largely individual. Chevrolet, including 137,831 in July, has produced 983,300 units this year, compared with about 900,000 in the opening seven months of 1928. The higher cost of machining a 6-cylinder motor over a 4 has tarnished the financial showing. Some changes in the line prior to the 1930 automobile shows are possible.

Buick's 1929 convex body is believed to have cost it the sale of upward of 75,000 cars. The 1930 body is generally regarded as restoring the line to good standing. The deflation of the new body, however, is more apparent than real and illustrates what an illusion color and line can create. The success of the new Marquette line remains to be determined, and there is some opinion that a car priced $200 lower would have stood a better chance.

The reported thorough rebuilding of the Chrysler "65" and "75" lines is aimed to develop the best car in Chrysler history. Like Buick, the attempt to "restyle" the automobile has cost sales and run up extraordinary promotion expense. The assimilation of the Dodge properties is not yet complete. The Dodge tradition was one of complete production, while Chrysler has leaned heavily toward assembly.

Hupp is said not to be entirely happy over the acquisition of the Chandler properties at Cleveland. Olds has been slow to get its Viking under way, although making great strides with Oldsmobile. Durant finds it difficult to gather momentum.

It is no happenstance that the fall advertising campaigns of the more important automobile manufacturers will be the most extensive in history.

* * *

THERE is also a bright side to the picture. Hudson-Essex shipments in seven months totaled 250,019 units, compared with 183,047 a year ago. Several schedules calling for a shutdown on Essex have been abandoned on account of continuing demand for this model.

Pontiac, like Essex and Oldsmobile in the low-priced field, has been booming. The high-priced cars like Lincoln, Cadillac and Packard had a good season up to a month ago. Nash and Studebaker, out of the district, have been piling up records.

* * *

BUT above all looms Ford. His shadow darkens the entire industry up to the $2500 car class. With Model A he has broken down social barriers and in many garages Model A has its place alongside Packards and Lincolns. While other manufacturers, almost without exception, are curtailing in August, Ford has scheduled 190,000 for August, the same as for July. Daily production of motors is averaging 8500. By merely holding his production rate Ford is increasing his percentage of total automobile

production. His July percentage was almost 40 and his August promises to be even higher.

Not all manufacturers would admit it, but Ford is the most serious problem facing the industry. With congestion putting a premium on size both for driving and parking and pride of ownership disappearing, Model A is developing wider markets. The small car finds increasing favor; Ford, Chevrolet, Whippet, Pontiac and Essex account for nearly 80 per cent of all automobile production, and Ford almost half of this group.

Ford production almost daily exceeds the palmiest period of Model T. All Ford energies are being concentrated on pushing Model A at home and abroad. Important color options are being added—a field in which Essex has pioneered. New type wire wheels are shortly to come through. The campaign for Ford taxicabs is just starting. Ford activities are at once the wonder and fear of the rest of the automotive industry.

* * *

THE restlessness apparent among many manufacturers, coupled with the usual vacation and new-model interludes, makes schedules at this season doubtful indicators. The general opinion is that August production of automobiles will be slightly under July, but that September will develop a sharp comeback.

Ford has 190,000 scheduled for August. Chevrolet, at 108,000, will be down 23,000 from July. Buick has slated 30,000, an increase of 8000. Both on Buick and Marquette, delays have been encountered, and Buick will specify little steel this month.

Essex is being produced at 760 daily, and Hudson at 300. Chrysler's July output of 4772 should be increased. Dodge is down the first half of August. Packard approaches new models, having announced its annual clearance sale of the current models.

Steel specifications are spotty, as a result. Blue annealed sheets lead demand. Most specifications are 30 per cent under the high point of May. Shipments into the district are expected to expand late this month in anticipation of September runs.

* * *

MORE scrap is moving out of Detroit by water than in any previous season, but some dealers believe the peak is being passed. Consumers are pressed to handle up to 3000 tons in one consignment, and the savings of the water route are less apparent as costs are developed. For one thing, it is now known that the loss in loading and unloading—material dropping from the magnet and crane between the vessel and the dock—amounts to 12 cents per ton.

An authoritative analysis of the cost of moving a ton of scrap from Detroit to Buffalo by water sums up to $3.17. The fixed steamer charge is $1.25. The switching charge at Detroit is 50 cents, and the standardized loading fee is 55 cents. At Buffalo the switching and dock costs total no less than 50 cents. It has been found necessary to weigh at both ports which, plus demurrage, average 25 cents. Loss in transit is 12 cents.

This total of $3.17 compares with an all-rail rate of $3.65 from Detroit to Buffalo. There is some pressure upon the railroads to lower their rate 50 cents. A Buffalo steelworks in 1928 took in 300,000 tons of scrap by water from Detroit and Duluth, costing the railroads over $1,000,000 in revenue. In addition, much finished steel was shipped as return cargo to the head of the lakes.

* * *

ELEVEN buildings of the Newton Steel Co. plant at Monroe, Mich., are scheduled to be completed in 90 days, and the rolling of sheets should be under way about Jan. 1. Material for the plant is being barged to the site, and dredging operations now in progress will provide an 18-foot channel to Lake Erie. The site is being developed with an open-hearth steel plant in prospect. Larger headquarters have been taken by the company in the Fisher building.

Half of the piling for the Great Lakes Steel Corp. open-hearth plant and sheet bar and strip mills at Ecorse, Mich., has been driven. Sand is being pumped in to make the necessary fills. Rolling mill equipment has been placed with the Mesta Machine Co. The Morgan Engineering Co. will provide 20 cranes. Alex Laughlin will build the six 150-ton open-hearth furnaces.

The Michigan Steel Corp. is installing a new blooming mill. The Michigan Steel Tubes Co. is making extensions which will give it a monthly capacity of 5,500,000 feet of electrically welded tubing. The new Steel & Tubes Inc. electrically-welded tube mill at Ferndale, a suburb, is now operating. A. J. Bopp, former Weirton Steel Co. official, has announced a cold rolled strip mill to be ready next April. The Hanna Furnace Co. will rebuild one of its Tug Island blast furnace stacks to 1000 tons daily to provide hot metal for the Great Lakes Steel Corp. open hearths. Nor is this the end of steel mill projects here.

Western Gear Co., Detroit, has changed its name to Western Mfg. Co.

Steel Industry Facts in Yearbook

Commerce Yearbook, issued by the department of commerce, Washington, carries much interesting information on the iron and steel industry, part gleaned from census figures. Study of these figures reveals results of the tendency to larger production units and the greater utilization of machine power instead of manpower. The greater increase of wages in proportion to the number of workers and the tremendous increase of value added by manufacture also are shown.

The following table presents these facts for 1899, 1925 and 1927:

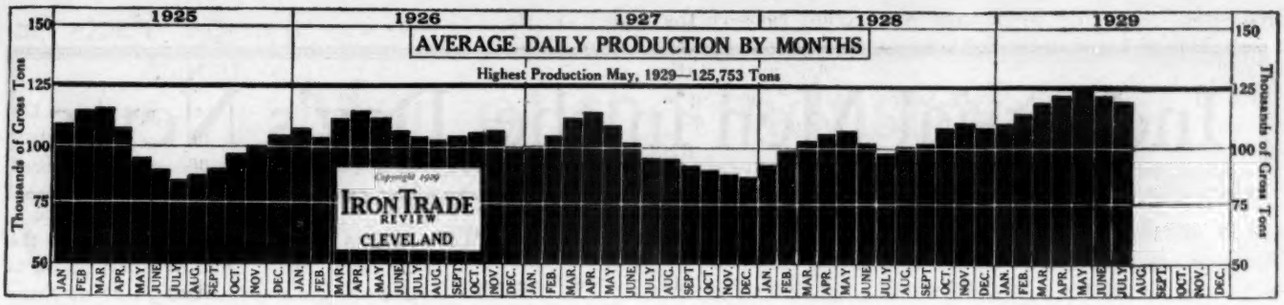
	1899	1925	1927
All industries:			
Number establishments	4,517	6,068	6,346
Average wage earners	274,884	851,270	835,501
Horsepower, prime movers, thousands..	.....	7,519	8,323
Wages, millions of dollars	.....	1,284	1,264
Value added, millions of dollars	302	2,272	2,654
Blast furnaces, steel works and rolling mills:			
Number of establishments	668	595	602
Average wage earners	222,490	399,914	389,270
Horsepower, prime movers, thousands	1,598	6,144	6,781
Wages, millions of dollars	121	660	646
Value added, millions	282	1,282	1,220
Advanced manufactures other than machinery and vehicles:			
Number of establishments	3,849	5,473	5,744
Average wage earners	57,394	451,356	446,231
Horsepower, prime movers, thousands....	.....	1,375	1,542
Wages, millions of dollars	.....	624	618
Value added, millions	20	1,445	1,434
Gross value, millions of dollars	112	2,750	2,710

Steel Fabricators Hold Meeting in Toronto

Charles F. Abbott, executive director, American Institute of Steel Construction Inc., in a recent address before the fabricators of structural steel in Canada, summarized the activities of the institute since its inception and pointed out the broad scope of its work in United States and Canada. Mr. Abbott spoke at the Royal York hotel, Toronto, July 30, and in his address demonstrated the effective results obtained from the institute's efforts to standardize practices and eliminate industrial waste.

Other speakers at the occasion were W. P. Champ, vice president and managing director, Hamilton Bridge Works, Hamilton, Ont., and J. N. Doyle, Dominion Bridge Works, Montreal, Que.

Missouri Pacific railroad plans building an all-steel freight station, costing $1,000,000, at Little Rock, Ark.



Pig Iron Rate Off, but July Record

PIG iron production in July developed a slight recession, declining from 123,837 gross tons daily in June to 122,016 tons, but nevertheless constituted an alltime record for July. In July, 1928, the daily rate was only 99,120 tons, while the previous record was 118,860 tons, set in 1923. Compared with the best production month in all history—May, 1929, when the daily rate was 125,753 tons—the rate of July was only 3 per cent lower.

MONTHLY PRODUCTION

	1929	1928	1927	1926
Jan.	3,433,028	2,855,515	3,101,346	3,319,789
Feb.	3,218,376	2,898,668	2,940,604	2,923,850
Mar.	3,709,518	3,199,175	3,482,107	3,458,171
April	3,663,167	3,181,975	3,424,377	3,438,805
May	3,898,344	3,292,790	3,391,067	3,477,820
June	3,715,104	3,082,340	3,089,726	3,232,478
July	3,782,511	3,072,711	2,954,625	3,224,663
Total 7 mos.	25,420,048	21,583,174	22,383,852	23,075,576
Aug.		3,136,995	2,950,674	3,200,723
Sept.		3,063,593	2,782,500	3,163,269
Oct.		3,373,539	2,812,015	3,334,206
Nov.		3,304,656	2,661,863	3,237,992
Dec.		3,369,784	2,698,208	3,089,175
Total		37,831,741	36,289,112	39,100,941

The long month enabled July to roll up a total production of 3,782,511 tons, compared with 3,715,104 tons in June and 3,072,711 tons last July. In the seven months ended with July, 25,420,048 tons of pig iron were made, compared with 21,583,174 tons in the same period of 1928 and 24,513,078 tons in the first seven months of 1923, the previous seven-month record.

July performance is marred, however, by the fact that for the first time since Nov. 30, 1928, the number of active stacks has declined. In the month there was a net loss of 3 stacks, bringing the number active down to 217 out of a potential 325. The losses were chiefly in the merchant classification, two of these being blown out and none in. Two steelworks stacks were blown in and three were blown out.

July production of merchant iron was 741,622 tons and of nonmerchant iron 3,040,889 tons. Both showed increases over June. Output of spiegeleisen and ferromanganese at 31,137 tons developed a distinct recession from 43,218 tons made the month before. The two merchant stacks which were blown out in July were those of the Colonial Iron Co., Colonial, Pa., and the Claire stack of E. W. Mudge Co. The Wheeling Steel Corp. blew out a stack at Steubenville, O., and lighted one at Martins Ferry, O. The Pittsburgh Steel Co. lighted a stack at Monessen, Pa., while the American Rolling Mill Co. blew one out at Ashland, Ky., and the Bethlehem Steel Co. one out at Steelton, Pa.

Rate of Operation

(Relation of Production to Capacity)

	1929†	1928*	1927‡
January	80.3	67.8	71.2
February	83.3	73.6	74.7
March	86.7	76.1	79.8
April	88.7	78.0	81.2
May	91.1	78.3	77.7
June	89.8	76.0	73.2
July	88.4	73.2	67.7

†Based on capacity of 50,367,665 tons as of Dec. 31, 1928. *Based on capacity of 49,605,720 tons. ‡Based on capacity of 51,379,400 tons. Capacities computed by American Iron and Steel institute.

AVERAGE DAILY PRODUCTION

	1929	1928	1927	1926	1925
Jan.	110,742	92,113	100,043	107,039	108,781
Feb.	114,942	99,954	105,021	104,423	114,788
Mar.	119,662	103,199	112,326	111,554	115,207
Apr.	122,106	106,066	114,146	114,627	107,041
May	125,753	106,219	109,388	112,187	94,642
June	123,837	102,745	102,991	107,749	89,301
July	122,016	99,120	95,311	104,021	85,976
Aug.		101,193	95,183	103,249	87,328
Sept.		102,120	92,750	105,442	90,862
Oct.		108,824	90,710	107,555	97,351
Nov.		110,155	88,728	107,933	100,775
Dec.		108,702	87,039	99,651	104,808
Ave.	119,544	103,365	99,422	107,126	99,645

DIVISIONS OF PRODUCTION

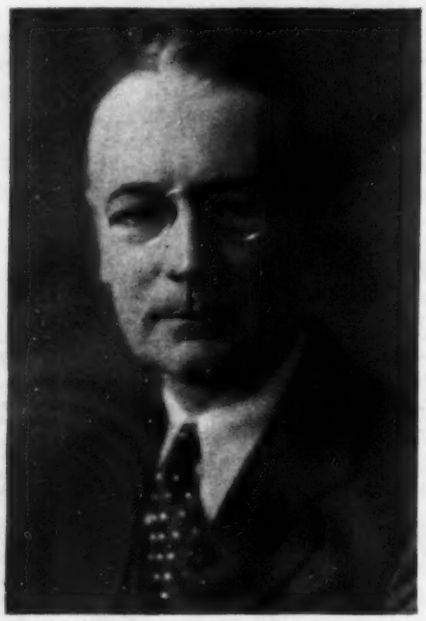
1928	Merchant	Non-merchant	Spiegel and ferro-manganese
Jan.	649,654	2,205,861	32,510
Feb.	579,298	2,319,370	27,376
Mar.	597,106	2,602,069	34,587
Apr.	586,045	2,595,930	33,599
May	596,664	2,696,126	38,466
June	589,127	2,493,213	38,628
July	584,611	2,488,100	42,230
Total 7 mos.	4,182,505	17,400,669	247,396
Aug.	563,510	2,573,485	33,585
Sept.	580,344	2,483,249	31,170
Oct.	643,043	2,730,496	33,519
Nov.	632,869	2,671,787	38,811
Dec.	686,431	2,683,353	34,541
Total	7,288,702	30,543,039	419,022
1929			
Jan.	744,448	2,688,580	37,210
Feb.	665,648	2,562,728	34,419
Mar.	740,966	2,968,552	37,997
Apr.	740,311	2,922,856	44,406
May	772,014	3,126,330	35,598
June	716,715	2,998,389	43,218
July	741,622	3,040,889	31,137
Total 7 mos.	5,121,724	20,298,324	263,985

JULY PIG IRON PRODUCTION

	No. in blast last day of month July	June	Total tonnage made Merchant	Nonmerchant	—Totals— July	June
Ohio	47	47	125,990	755,362	881,352	869,053
Pennsylvania	77	79	157,441	1,111,881	1,269,322	1,253,189
Alabama	17	17	133,296	92,217	225,513	219,157
New York	16	16	113,121	130,371	243,492	235,001
Illinois	19	19	116,925	268,634	385,559	394,220
Colorado	2	2				
Indiana	16	16				
Maryland	6	6	7,566	509,768	517,334	491,350
Virginia	1	1				
Wisconsin	0	0				
Kentucky	1	2				
Massachusetts	1	1				
Tennessee	3	3	35,169	77,023	112,192	113,604
Utah	1	1				
West Virginia	3	3				
Michigan	4	4				
Minnesota	3	3				
Missouri	0	0	37,605	67,445	105,050	94,738
New Jersey	0	0				
Texas	0	0				
Spiegel and ferro—all states			14,509	28,188	42,697	44,792
Total	217	220	741,622	3,040,889	3,782,511	3,715,104

Industrial Men in the Day's News

Samuel P. Howe, President, Forging Manufacturers Association



ELECTED to guide the destinies of the newly-formed group of forging manufacturers, he already has made progress along constructive lines.

DEMONSTRATED ability in bringing a small forge shop back from the brink of ruin to occupy a respected place in industry caused his selection.

UNHAMPERED by established precedents, he has branched out with initiative and foresight, which augur well for the forging makers' organization.

WHEN last March a group of forging manufacturers got together and organized the Forging Manufacturers' association, they sought an executive head within the ranks of the forge industry. They wanted a man who had had at least 25 years' experience in the forging line; a man whose one real hobby was the making of forgings; a man, moreover, who had demonstrated his ability to accomplish big results, despite difficulties; in a word, a man who had so organized his own business as to make it grow from a mere thought into a concrete producing unit, with a substantial profit at the year end. The specification seemed to fit Samuel P. Howe, president of the Camden Forge Co.

The success of the association is practically assured. It no longer is a mere whim. In the short space of a few weeks it has achievements to its credit. It comprises an aggregation of men, loyally giving their energies and their time under Mr. Howe's guidance to an effort which should effectively eliminate uneconomical methods and which, it is becoming evident, should have been undertaken years ago.

Mr. Howe was born in New York in 1878. In his youth he attended the Brooklyn Polytechnic institute, from which he entered the engineering department of Cornell university in 1898. Under the stimulating influence of such men as Robert Thurston, John Barr, Dexter S. Kimball and others, Mr. Howe was spurred on in his collegiate activities to such an extent that the faculty of the engineering college elected him in his senior year to the engineering honorory society, Sigma Xi.

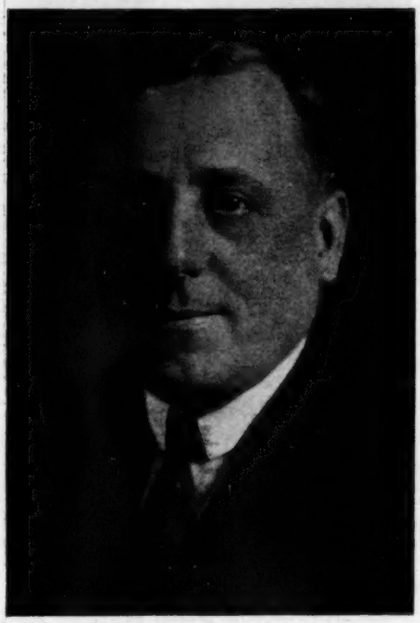
Shortly after graduation, he married Anna Elliott, daughter of the late Charles Elliott, a man extensively known in the business and industry of western New York. After traveling abroad for about a year, Mr. Howe discovered that his interest, curiosity and constructive thoughts were intrigued by the hopelessly entangled condition of a small forge company located on the outskirts of Camden, N. J. To snatch this business back from failure became his ambition. He took this derelict, reorganized its finances, paid off its debts, satisfied all stockholders and with the small amount of remaining money, purchased a second hand 3000-pound steam hammer, a third hand lathe, and with unlimited confidence formed Camden Forge Co.

Some men achieve success by adhering to conventional lines; they worship precedent. Mr. Howe was not then nor is he now of that type. He never has been much concerned about established precedents. New things appeal to him. He has often said that he knew nothing about the forge business and so was foot and fancy free to do what, as and when he pleased, with the result what started with a patch of ground comprising one acre of high land and two of swamp, a boiler, an engine, the above mentioned used equipment and 15 men, has grown to the present Camden Forge Co., occupying 30 acres, a large plant but retaining its reputation for fairness, energy and ethical business dealings in producing forgings that has become known throughout the country.

As indicated in IRON TRADE REVIEW of March 7, officers of the Forging Manufacturers' association are: President, Mr. Howe; vice presidents, Robert F. Devine Jr., president of the Erie Forge Co., Erie, Pa., and Stuart Hazlewood, vice president of the Midvale Co., Philadelphia; treasurer, C. W. Heppenstall, president of the Heppenstall Forge & Knife Co., Pittsburgh; and secretary-manager, George H. Weiler, Grand Central Terminal, New York. A biographical sketch of Mr. Weiler appeared in IRON TRADE REVIEW of May 16.

Men of the Industry

W. J. BECK, for 19 years director of research of the American Rolling Mill Co., Middletown, Pa., has been appointed assistant to Charles R. Hook, general manager. Mr. Beck will have direct charge of the development in electrical steel sheets for magnetic purposes, a field in which this company was a pioneer. He is widely known in this branch of the iron and steel industry, having joined the company in 1903.



W. J. BECK

Graduating from Purdue university in 1896, Mr. Beck was for several years an electrical engineer with the Westinghouse Electric Co. He has had a great deal of practical engineering experience, his early work being of that nature, with emphasis on electrical engineering. He went with the American Rolling Mill Co. 26 years ago as superintendent of the electrical department and in 1910 was appointed director of research.

Mr. Beck has had close contact with the manufacture of electrical machinery, motors, generators, transformer and radio equipment and has made a detailed study of the characteristics of iron and steel for magnetic purposes. He is a member of various technical societies and has kept in close touch with the scientific development of the metallurgical and magnetic problems. He belongs to the American Electrochemical society, American Institute of Mining and Metallurgical Engineers, American Society for Steel Treating, American Society for Testing Materials, British Institute of Metals, British Iron and Steel institute, Engineering Society of Western Pennsylvania, Iron and Steel Institute of Germany, and the West of Scotland Iron and Steel institute.

Dr. Anson Hayes, has been appointed director of research of the American company. He will be in charge of all metallurgical research problems for this organization. For the past year and a half Dr. Hayes has been chief of the chemical division of the research division. Before joining the American company, Dr. Hayes held the chair of physical chemistry at Iowa State college for 12 years and headed that division of the chemical department of that institution. He also taught graduate courses in thermo-dynamics and directed research work in the study of factors that influence the stability of iron carbide, particularly in white iron composition suitable for the manufacture of malleable iron.

Dr. Hayes is a graduate of Drake university, class of 1908. His master's degree was taken at Iowa State college, and he received his Ph. D from the University of Chicago. He is a member of Sigma Xi, Phi Beta Kappa, Phi Kappa Phi, Kappa Phi, Phi Lambda Upsilon, American Chemical society, American Electrochemical society, American Society for Testing Materials, and American Society for Steel Treating.

* * *

H. B. Hanley, formerly connected with Whitehead Bros. Co., New York, has become associated with the American Laundry Machinery Co., Rochester, N. Y., as metallurgist in the foundry department.

* * *

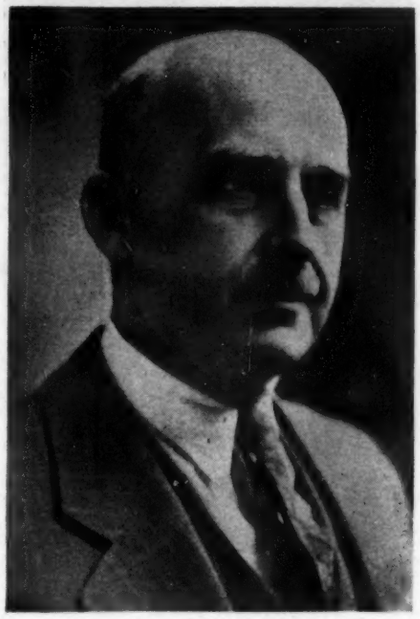
Walter M. McFarland and C. R. Burt have been appointed to represent the American Institute of Weights and Measures at the fiftieth anniversary celebration of the American Society of Mechanical Engineers in 1930.

* * *

George M. Schultheis has been elected president of the Garrett Brass & Aluminum Foundry Co., Garrett, Ind. Other officers of the company are Alfred J. Bahr, vice president; D. B. VanFleet, secretary; C. H. Heinzerling, treasurer and George H. Tuck, general manager.

* * *

Robert B. Marshall, conveyor sales manager, has joined the conveyor division of the Chain Belt Co., with headquarters at the company's New York office, 50 church street. He has been associated with the conveyor industry for 21 years. In addition to conveyors he will handle belt conveyors, glass



DR. ANSON HAYES

batch handling equipment and silo storage system manufactured by the Stearns Conveyor Co., Cleveland, a division of the Chain Belt Co. W. H. Quinn is district manager at New York.

* * *

Paul Schwerin, formerly associated with the Western Electric Co. and Bell Telephone Co. and holder of 40 patents in connection with radio tubes, has been named director of research of the Perryman Electric Co. Inc.

* * *

E. F. DuBrul, general manager of the National Machine Tool Builders association, has been appointed a member of the council of the American Institute of Weights and Measures, New York, succeeding the late Worcester R. Warner.

* * *

L. H. Beyer, for many years con-

nected with the American Radiator Co. in Buffalo and New York as manufacturing department executive and director of purchases, has become sales director of the Dunbar bearing bronze division of the Buffalo Bronze Die Cast Corp., Buffalo.

* * *

J. Blair Sutton, president of the Sutton Engineering Co., Pittsburgh, has returned from a three-months' business trip in Europe.

* * *

W. T. Whalen, formerly vice president and general manager of General Motors Export Corp., has been elected vice president and general manager of the Fokker Aircraft Corp.

E. J. BURNES

Whose appointment as general sales agent for the Chateaugay Ore & Iron Co. was noted in IRON TRADE REVIEW, July 18

of America, Wheeling, W. Va. He has been with General Motors in various capacities since 1920.

* * *

Maurice B. Gallaher, of C. D. Robbins & Co., and F. Don Williams, have been elected directors of the Dayton Airplane Engine Co.

* * *

Homer W. Bleckley, Jerome C. Smith and George H. Mirick have been appointed trustees of Stevens Walden-Worcester Inc., wrench manufacturer, Worcester, Mass.

* * *

Harold Smith, general solicitor for Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has been elected vice president, with offices at 150 Broadway, New York.

* * *

Lawrence Bass., formerly of the scientific staff of the Mellon Institute for Medical Research, has been appointed executive assistant to the director of the Mellon Institute of Industrial Research, Pittsburgh.

* * *

Paul Zens, formerly with Jordan Motor Car Co., has been elected vice president and director of the Continental Brake Shoe & Equipment Co., New York. He will be in charge of the company's office at Cleveland.

* * *

Howard A. Lewis has been elected treasurer of the Kelvinator Corp. and vice president of Kelvinator Sales Corp. He will continue in charge of foreign business for these organizations.

* * *

Darius E. Peck, assistant manager of the law department, General Electric Co., Schenectady, N. Y., was made vice president and general counsel of the company Aug. 1, succeeding A. H. Jackson, who has retired.

* * *

Paul A. Meehan, for many years with the American Dressler Tunnel Kilns Inc., Cleveland, becomes associated with the Simplex Engineering Co., Washington, Pa., to take charge of its tunnel kiln department.

* * *

C. R. McLaughlin has been appointed assistant director of the personnel department of the Buick Motor Co., Flint, Mich., succeeding S. Garland Butler, resigned. C. C. Williams has been appointed superintendent of employment, succeeding Mr. McLaughlin.

* * *

Merritt L. Fox, former assistant professor of mechanical engineering in the University of Iowa, has been appointed manager of the research and experimental department of the Houdaille Engineering Corp., Buffalo, manufacturer of shock absorbers for automobiles.

* * *

Charles E. Hauch, formerly purchasing agent for the United Metal Products Co., Canton, O., has been made purchasing agent for the North American Refractories Co., with headquarters in the general offices of the company, National City Bank building, Cleveland.

* * *

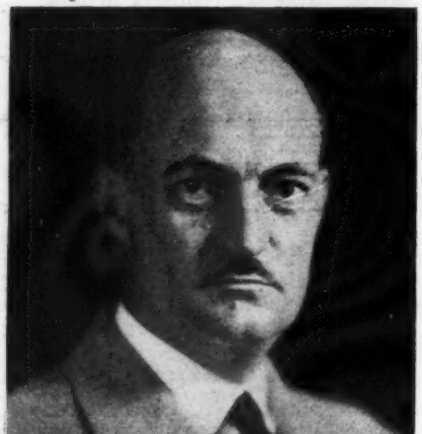
Robert K. Plummer, recently made assistant sales manager of Gears & Forgings Inc., Cleveland, was formerly in the Milwaukee office of the company and not the Indianapolis office, as stated last week. George W. Davis, formerly in the Chicago office of the company, succeeds Mr. Plummer at Milwaukee.

* * *

Leon F. Payne, manager of the credit department of Carnegie Steel Co., Pittsburgh, has been elected treasurer of the Oil Well Supply Co., Pittsburgh, succeeding H. H. James, recently elected vice president in charge of manufacturing. Lester H. Keim has been elected vice president in charge of the company's California division.

* * *

W. H. Arnold, formerly assistant sales manager of the Pittsburgh Valve, Foundry & Construction Co., Pittsburg, has been appointed general sales manager, succeeding C. A. Anderson who has been made president of the company. Mr. Arnold has been associated with the company since 1905 and since 1917 has



GEORGE H. BANCROFT

Whose appointment as general purchasing agent for Willys-Overland Co., Toledo, O., was noted in IRON TRADE REVIEW, July 25

been engaged in selling its products. He is the fourth sales manager since the company was incorporated in 1900.

* * *

Alan Kissock, who invented the process of alloying molybdenum with steel through the use of calcium molybdate, has just been elected vice president in charge of production of the Climax Molybdenum Co., New York. Mr. Kissock was graduated from Colorado School of Mines in 1912 and for three years thereafter was engaged in mining examination and management. From 1915 to 1918 he was manager of the Molybdenum Products Co., Tucson, Ariz., and then he became president of the Steel Alloys Co., Los Angeles, where he remained until 1922. The next two years he devoted to mine management and

examination, and then went to the Climax Molybdenum Co. in 1924.

* * *

Robert W. Wolcott, president, Lukens Steel Co., Coatesville, Pa., sailed for Europe, Aug. 3, to be gone until the middle of October.

* * *

L. J. Brown, formerly president and general manager of the Nichols & Shepard Co., has resigned as executive vice president of the Oliver Farm Equipment Co., Chicago.

* * *

George McLaughlin, for a number of years a member of the Cincinnati office of the American Sheet & Tin Plate Co., has been promoted to assistant manager of sales at Cincinnati.

* * *

John E. Greiner has been elected president of the Engineers Club of Baltimore, which has its headquarters at 4-B West Fayette street, that city. Other officers are: First vice president, F. A. Allner; second vice president, Adrian Hughes; secretary and treasurer, G. G. Chevalier.

* * *

George L. Gordon, assistant general manager of sales of the Lukens Steel Co., Coatesville, Pa., has been made general manager of sales to fill the vacancy caused by the election of Frank H. Gordon as vice president.

J. H. McElhinney, assistant general superintendent, has been promoted to general superintendent, succeeding W. H. Warren, also made a vice president.

G. Donald Spackman, superintendent of the flanging department, has been made assistant general superintendent, succeeding Mr. McElhinney.

* * *

E. D. Spicer, superintendent of refrigeration department of General Electric Co., was made assistant manager of Schenectady, N. Y., works effective Aug. 1. Mr. Spicer was graduated from Cornell university in 1912. In 1924 he went with the General Electric Co., being assigned to the staff of H. F. T. Erben in the general manufacturing department. In December, 1924, he joined the staff of James A. Smith, superintendent of the Schenectady works, and in March, 1925, was placed in charge of the insulator and carbon brush department.

In May, 1926, he became superintendent of the radio department, and was promoted to superintendency of the newly-organized refrigeration department Aug. 1, 1927.

Germany supplies most machinery imported by Italy, with Great Britain and France next in order. American machinery does not compete with low priced continental equipment. Specialized and high-production machinery of high quality offers the only field to machinery manufacturers in the United States.

Record Bonus Is Paid

General Electric Co., Schenectady, N. Y., Aug. 6 paid $1,825,832 in supplementary compensation to its factory and office employes who have been in the service of the company five years or longer. This is the largest bonus ever paid by the company and represents 5 per cent of earnings of employes for the six months ending June 30. Approximately one third of the total, or $584,342, was paid to employes at the Schenectady works.

During the past 5½ years the company has paid $15,757,722 in supplementary compensation to employes under this bonus plan.

Steelworks Planned for McKeefrey Stack

Cleveland, Aug. 6.—M. B. Abrams, president of the Atlas Steel & Supply Co., who has purchased the blast furnace stack at Leetonia, O., from the McKeefrey Iron Co., states that he will operate the stack and add steelmaking capacity. A Belgian engineer expert in the production of stainless steel will be attached to the plant, according to Mr. Abrams. The date for reopening the stack has not been set. Steelwork for open-hearth furnaces has been on the ground at Leetonia for some time.

The McKeefrey stack was last relined in 1918 and is listed as having an annual capacity of 120,000 tons. It is the successor to the original blast furnace built at Leetonia in 1866. The steel plant contemplated 16 years ago was sidetracked when a Pittsburgh bank failed.

Obituaries

CHARLES H. SCHRODER, 62, secretary, Murray Iron Works Co., Burlington, Iowa, for 27 years, died July 29. He entered the employ of his company 47 years ago.

* * *

Joseph E. Hubinger, president, Eastern Machine Screw Co., New Haven, Conn., died at his home in that city, July 30. He had been an invalid for some years.

* * *

Joseph D. Marks, 48, Cleveland, for more than 30 years in the iron and steel scrap business, connected with the Fishel & Marks Co. and H. R. Fishel Co. and president of J. D. Marks Iron & Steel Co., died at Battle Creek, Mich., Aug. 1.

* * *

Louis de Franklin Munger, 66, said to be the inventor of a demountable automobile rim and former manufacturer of bicycles, died recently of heart disease at his home in the Hotel Dauphin, New York.

* * *

Walter MacGregor, general superintendent of the Wheeling Mold & Foundry Co., Wheeling, W. Va., died in the Ohio Valley General Hospital, Wheeling, following an operation.

* * *

William Stanley Eckert, treasurer of the W. Parsons Todd Corp., New York, formerly associated with the National Conduit & Cable Co. and Baltimore Tube Co. and an organizer of the Brass and Copper Research association, died Aug. 1.

* * *

Samuel Dunham Sibley, 49, professor at Syracuse university and engineer with the Solvay Process and Sement Solvay companies for a number of years, died at Syracuse, N. Y., July 30. His health had been impaired two years ago by becoming gassed at a chemical plant while helping save several workmen.

* * *

Thomas Rodd, retired chief engineer of the Pennsylvania railroad lines west of Pittsburgh, died at Pittsburgh Aug. 3, aged 80. Mr. Rodd entered the employ of the Pennsylvania railroad in 1872, three years after his graduation from the United States Naval academy. Besides his work with the Pennsylvania railroad, he had a private practice as engineer and architect prior to 1903, having constructed the East Pittsburgh, Pa., plant of the Westinghouse Electric & Mfg. Co. From 1913 to 1919, the year of his retirement from the Pennsylvania railroad, Mr. Rodd acted as chief engineer of the Chicago Union Station Co.

* * *

William H. Hayden, 77, former secretary-treasurer of the Hayden & Corbett Chain Co., Columbus, O., died Aug. 4.

Pittsburgh Steel Gains

Substantial gains are reported by the Pittsburgh Steel Co., Pittsburgh, in earnings for second quarter and for the fiscal year ending June 30. Net profit for the 12 months after all charges, interest, depreciation and federal taxes was $4,499,480, compared with $1,342,141 in the preceding fiscal year and is equal after preferred dividends to $14.85 a share on 253,500 shares of common stock. Net profit for June quarter was $1,422,548 after all charges, equal after preferred dividends to $4.84 a share on the common stock. Net for the first six months of this year was $2,756,209, equal after preferred dividends to $9.42 a share on the common. Comparative figures for 1928 for the first three months and the half-year are not available, as the company only recently commenced the issuance of quarterly earnings reports.

Locomotive Earnings Up

American Locomotive Co. reports net earnings for first half of $3,075,939 after all charges. After providing for preferred dividends, there remains $1,728,439, equivalent to $2.24 per share of common stock, compared with 20 cents per share in first half of 1928.

Dividends of $1.75 per quarter on preferred and $2 per quarter on common created a deficit of $1,351,560 in the dividend account, which was made up from undivided profits of preceding years. The surplus as of June 30 was $22,179,751.

Locomotive Sales Lower

Washington, Aug. 6.—July shipments of steam and electric locomotives declined from June, but comparing the figures with the same period of last year, a decided gain is shown. Department of commerce monthly comparison follow:

Year and Month	Shipments Domestic Total	Shipments Domestic Steam	Shipments Domestic Electric	Unfilled orders Domestic Total	Unfilled orders Domestic Steam	Unfilled orders Domestic Electric
1928						
July	46	19	5	198	98	59
Tot., 7 mo.	360	234	81	.....	.....	.....
Aug.	34	23	4	204	135	26
Sept.	41	28	2	178	118	27
Oct.	36	26	.....	170	113	29
Nov.	35	20	1	152	104	31
Dec.	44	36	4	282	238	27
(1928)	550	367	92	.....	.....	.....
1929						
Jan.	23	6	6	278	251	21
Feb.	23	20	1	339	301	20
March	35	31	4	488	419	24
April	61	57	2	495	419	24
May	99	92	2	444	362	22
June	78	58	1	552	489	21
July	60	39	3	539	490	18
Tot., 7 mo.	388	303	19	.....	.....	.....

Division Offers Papers at Metals Congress

The iron and steel division of the American Institute of Mining and Metallurgical Engineers has announced the technical papers which are to be presented as the division's portion of the program for the National Metal congress to be held in Cleveland, Sept. 9-13. This will be the first fall meeting of the division and sessions will be held Tuesday, Wednesday and Thursday mornings, Sept. 10, 11 and 12, the Wednesday morning session being devoted to ores, while the other sessions will be given over to discussion of melting practice. Papers to be presented by the iron and steel division are as follows:

"The Change in Microstructure of Iron at the A_3 Transformation Points," by B. A. Rogers, Western Electric Co., Chicago.

"A New Development in Wrought Iron Manufacture," by James Aston, Carnegie Institute of Technology, Pittsburgh.

"Viscosity of Blast Furnace Slags," by R. S. McCaffery, University of Wisconsin, Madison, Wis.

"Fluorspar and Its Uses," by Earl Brokenshire, Oglebay, Norton & Co., Cleveland.

"Foreign Iron Ores," by Charles Hart, Delaware River Steel Co., Chester, Pa.

"Iron Ore Sinter," by G. M. Schwartz, University of Minnesota, Minneapolis.

"The Bradley Process for the Beneficiation of Manganiferous Ores," by Carl Zapffe, Northern Pacific railroad, Brainerd, Minn.

"The Diffusion of Iron Oxide from Slag to Metal in the Open-Hearth Process," by C. H. Herty Jr., bureau of mines, Pittsburgh.

"Experimental Determination of Equilibrium in the System Carbon-FeO in Molton Iron," by A. B. Kinzel and J. J. Egan, Union Carbide & Carbon Research Laboratories, Long Island City, N. Y.

"Rate of Carbon Drop and Degree of Oxidation of the Metal Bath in Basic Open-Hearth Practice," by A. L. Feild, Union Carbide & Carbon Co., New York.

Convention Calendar

Sept. 3-6—American Institute of Electrical Engineers. Annual Pacific coast convention at Santa Monica, Calif. F. L. Hutchinson, 33 West Thirty-ninth street, New York, is secretary.

Sept. 6-7—Lake Superior Mining institute. Twenty-seventh annual meeting at the Houghton club, Houghton, Mich. A. J. Yungbluth, Ishpeming, Mich., is secretary.

Sept. 9-10—American Manganese Producers' association. Annual convention. Mayflower hotel, Washington. H. A. Pumpelly, Metropolitan bank building, Washington, secretary.

Sept. 9-12—American Welding society. Annual fall meeting at Hotel Statler, Cleveland. M. M. Kelly, 33 West Thirty-ninth street, New York, is secretary.

Sept. 9-12—American Institute of Mining and Metallurgical Engineers. Meeting of iron and steel division at Hotel Cleveland, Cleveland. H. Foster Bain, 29 West Thirty-ninth street, New York, is secretary.

Sept. 9-12—American Institute of Mining and Metallurgical Engineers. Meeting of institute of metals division at Hotel Cleveland, Cleveland. W. M. Corse, 810 Eighteenth street, Washington, is secretary.

Sept. 9-13—American Society for Steel Treating. Eleventh annual convention and national metal exposition at Public auditorium, Cleveland. Headquarters at Hotel Cleveland. W. H. Eisenman, 7016 Euclid avenue, Cleveland, is secretary.

Sept. 10-13—Iron and Steel institute (Great Britain). Autumn meeting at Newcastle-on-Tyne, England. G. C. Lloyd, 28 Victoria street, London, S.W.1, is secretary.

Sept. 11-13—American Society of Mechanical Engineers. Meeting of iron and steel division at Hollenden hotel, Cleveland. P. T. Wetter, 29 West Thirty-ninth street, New York, is secretary.

Sept. 19-21—American Electrochemical society. Fall meeting at William Penn hotel, Pittsburgh. Dr. Colin G. Fink, Columbia university, New York, is secretary.

Sept. 24-25—American Refractories institute. Annual technical meeting at Columbus, O. Dorothy A. Texter, 2218 Oliver building, Pittsburgh, is secretary.

Sept. 30-Oct. 2—National Industrial Advertisers association. Eighth annual convention in Cincinnati. H. VonP. Thomas, Bussman Mfg. Co., St. Louis, is secretary.

Sept. 30-Oct. 4—National Machine Tool Builders' association. Second national machine tool exposition at Public auditorium, Cleveland. E. F. DuBrul, 1415 Enquirer building Cincinnati, is secretary.

Sept. 30-Oct. 4—National Safety council. Eighteenth annual meeting at Chicago. William H. Cameron, 108 East Ohio street, Chicago, is managing director.

Oct. 2-4—Society of Automotive Engineers. Production meeting at Hotel Cleveland, Cleveland. Coker F. Clarkson, 29 West Thirty-ninth street, New York, is secretary.

Oct. 7-10—American Society of Mechanical Engineers. Third national fuels division meeting in Philadelphia. Calvin W. Rice, 29 West Thirty-ninth street, New York, is secretary.

Oct. 21-24—American Hardware Manufacturers association. Annual meeting at the Marlborough-Blenheim hotel, Atlantic City, N. J. Charles F. Rockwell, 342 Madison avenue, New York, is secretary-treasurer.

Oct. 21-24—National Hardware Association of the United States. Thirty-fifth annual convention at the Marlborough-Blenheim hotel, Atlantic City, N. J. George A. Fernley, 505 Arch street, Philadelphia, is secretary-treasurer.

Oct. 24-26—American Gear Manufacturers association. Semiannual meeting at Benjamin Franklin hotel, Philadelphia. T. W. Owen, 3608 Euclid avenue, Cleveland, is secretary.

Claims Pipe Rate High

Washington, Aug. 6.—A complaint has been filed with the United States shipping board that cast iron pipe to Manila shipped for the United States Pipe & Foundry Co., of Burlington, N. J., had too high a freight rate as charged by the Tampa Inter Ocean Steamship Co. and the Kerr Steamship Co.

The pipe company is asking refund of $1,606.73 which it is claimed was unlawful and the companies are asked to maintain a lower rate.

Car Surplus Increases

Class I railroads July 23 had 216,136 surplus freight cars in good repair and immediately available for service, the car service division of the American Railway association states. This was an increase of 4971 cars compared with July 15. Surplus coal cars July 23 totaled 64,473, an increase of 1924 cars within approximately a week, while surplus box cars totaled 106,935, an increase of 3932.

Here and There in Industry

Timely Information Which Records Developments in Various Lines of Productive Enterprise

PITTSBURGH STEEL FOUNDRY CORP., Glassport, Pa., has acquired Sharon Foundry Co., Sharon, Pa., according to official announcement by the former company. Sharon Foundry Co., capitalized at $500,000, operates two 25-ton acid open-hearth furnaces and produces miscellaneous steel castings for rolling mills and machinery builders, including annealing boxes and bottoms. L. A. Way is president. Pittsburgh Steel Foundry Corp. operates four open-hearth furnaces and has a monthly capacity of 2500 tons, producing steel castings and rolling mill machinery. Stewart Johnston is president. Stockholders of the Pittsburgh company will meet Sept. 30 to vote on a proposed increase in capital stock from 30,000 shares to 60,000 shares of no par value.

* * *

NEWTON STEEL CO., Youngstown, O., has moved its Detroit offices from General Motors building to suite 1911 Fisher building.

* * *

GENERAL BRONZE CO., Pittsburgh, has established a New York office at 149 Broadway, in charge of Presley Hamilton.

* * *

FAIRMONT MFG. CO., Fairmont, W. Va., is installing electric furnaces and rolling mills to add to its production of duralumin sheets for airplane construction.

* * *

ERIE BOLT & NUT CO., Erie, Pa., will build a 1-story brick and steel machine shop and storage building, 50 x 140 feet. Materials and equipment have been bought.

* * *

EASTERN AIRCRAFT INC., Providence, R. I., has leased a temporary site at Pawtucket, R. I., to manufacture an all-metal plane, American rights for which have been taken from the Rumpler works in Germany.

* * *

PAGE STEEL & WIRE CO., Bridgeport, Conn., has moved its sales department from Bridgeport to Pittsburgh, occupying quarters in the American Bank building. Sales of chain link fence will be handled by R. J. Teeple; field fence and general wire products sales by S. B. Cairna and welding wire and specialties by J. J. Flaherty. W. T. Kyle, general manager of sales will be at the general sales office, 230 Park avenue, New York.

* * *

AMERICAN ELECTRO METAL CORP., Lewiston, Me., announces a five year expansion program which will start with a plant addition at once and continue with a larger addition next fall.

* * *

ASSOCIATED GAS & ELECTRIC CO., New York, is planning expenditure of $40,000,000 for expansion. It plans to build additional plants and to complete connections for tie-ins with power chains along the Atlantic coast.

* * *

VALLEY FORGE STEEL & TOOL CO., Chicago, has bought a 6-story building and site 75 x 100 feet at Monroe & Jefferson streets, part of which will be occupied by the company. Clarence Alvidson is president.

* * *

NATIONAL FORGE & ORDNANCE CO., Irvine, Pa., has completed an addition and has started production from its new 7-ton electric furnace. A new 10-ton electric furnace is being installed. A new laboratory also has been added.

* * *

MIDWEST STOVE & ENAMELING CO., Belleville, Ill., has leased property at Second and Chestnut streets, St. Louis, from C. Heinz Stove Co. for the manufacture of sheet iron heaters. T. A. Stoelzle is president of Midwest Stove & Enameling Co.

* * *

SHEET STEEL PRODUCTS CO. OF MICHIGAN is being reorganized as the Michigan Products Corp. Stock will consist of 3750 shares of preferred stock and 2000 shares of common at $100 per share. The incorporators are D. A. Crawford, O. M. Carry, R. Jardine, H. G. Johnson and W. B. Sullivan.

* * *

SMITH WHEEL INC., Syracuse, N. Y., has changed its name to Syracuse Perfection Castings Inc. The company has terminated the wheel division and now is concentrating efforts in the casting division, which was established in 1882. The company manufactures malleable, gray iron,, aluminum, brass, and bronze castings.

* * *

LOMBARD IRON WORKS, Augusta, Ga., has elected J. G. Belding, president; W. A. Rigsby, treasurer, and E. Donald Fortson, secretary. Howard M. Leitner has been made superintendent. Directors of the company are George S. Lombard, S. A. Fortson, I. S. Ferguson, J. G. Belding, and W. A. Rigsby.

* * *

WISCONSIN ORNAMENTAL IRON & BRONZE CO., 1647 Booth street, Milwaukee, and General Bronze Co., Long Island City, N. Y., are negotiating for a merger. The eastern company is one of the largest bronze producers in the United States. The Milwaukee company was organized in 1894 by the late George H. Norris.

* * *

WESTINGHOUSE ELECTRIC & MFG. CO., East Pittsburgh, Pa., has received an order for electrical equipment for the new Civic Opera building in Chicago. It includes elevators, heating, ventilating and pump motors, lighting panelboards, power and elevator panels, distribution switchboards and theater switchboards. The direct-current switchboard is unusual in that it has no fuses, being controlled by carbon circuit breakers. There are 130 of these, all two-pole, electrically and mechanically trip free. They range from 100 to 12,000 amperes.

* * *

MOE BROS. MFG. CO., Milwaukee, has been organized by Henrik Moe and Ole E. Moe, who have retired from the Moe-Bridges Co., Milwaukee, manufacturing electric lighting equipment, to enter the same line of production, with the addition of commercial equipment to domestic fixtures. A plant has been leased on East Clybourn street, Milwaukee, and for the present about 15,000 square feet will be equipped for production, to start early in September. Henrik Moe was president of the Moe-Bridges Co. and becomes head of the new con-

cern, with Ole Moe as vice-president and sales manager.

* * *

GREAT LAKES STEEL CORP., and Michigan Steel Corp., Detroit, have moved their offices to 2400 New Union Trust building.

* * *

HOUDAILLE-HERSHEY CORP. is acquiring the Skinner Co. Ltd., Gananoque, Ont., manufacturer of automotive bumpers, by exchange of stock.

* * *

SPECIALTY MFG. CO., 10698 Berea road, Cleveland, has completed an addition doubling its previous capacity for the production of industrial brushes.

* * *

GOGAN MACHINE & FOUNDRY CO., Cleveland, has been awarded a contract for spring and bumper manufacturing machinery by the government of Russia. The machinery will be installed in the truck plant of the soviet at Moscow.

* * *

HAMILTON BRIDGE CO. has acquired a site of six acres on the Toronto waterfront, including large buildings formerly occupied by the Dominion Shipbuilding Co., and will shortly commence operations, employing 150 to 200 men.

* * *

MOON MOTOR CO., St. Louis, is now producing cotton picking machines, of which 400 are scheduled for August, for the American Cotton Pickers Corp. Next year it is expected 20,000 pickers will be made. The picker weighs 300 pounds.

* * *

EMPIRE PIPE LINE CO. is enlarging its Cushing-Oklahoma City line pump stations by installing eight additional centrifugal pumps to increase capacity to approximately 35,000 barrels daily. A. N. Horne, Bartlesville, Okla., is general superintendent of lines.

* * *

MID-CONTINENT LEAD & ZINC CORP., Joplin, Mo., recently organized by Frank Childress and associates, has bought the lead and zinc mining properties of the Lawyers Mining Co., Miami, Okla., including 250 acres of proven and producing leases in the Tri-State field.

* * *

INDUSTRIAL BROWNHOIST CORP., Cleveland, is making additions to its plant at Bay City, Mich. They include replacement of boilers in the power plant, two 406-horsepower boilers being furnished by the American Engineering Co. Coal bunkers and ash and coal-handling equipments of the company's own construction. A new unit is being added, 50 x 100 feet, for a shearing and cutting-off unit. Equipment from other departments is being moved into this unit and a plate shear with capacity for ¾-inch x 62-inch gad is being installed.

* * *

VULCAN DETINNING CO., Neville Island, Pittsburgh, has made a new agreement with the Continental Can Co. Inc., Chicago, whereby for 10 years, ending Dec. 31, 1938, all tin plate scrap produced by the Continental Can Co. east of the Rocky mountains is to be received by the Vulcan company.

* * *

LOUIS E. EMERMAN & CO., 1761 Elston avenue, Chicago, dealer and jobber in machine tools, is to concentrate its distributing operations in the former McCord Mfg. Co. Inc. plant at 120th street and the Illinois Central railroad, Chicago, which it has just purchased. The plant comprises nearly six acres, three-fourths of which is occupied by an industrial building.

* * *

COOK ELECTRIC CO., 2700 Southport avenue, Chicago, has acquired from the Teletype Corp. property 123 x 232 feet at 2731 High street, Chicago, improved with a 1 and 2-story factory and office building and a 1-story warehouse. The deal was an exchange transaction as the result of which the Cook Electric Co. conveyed to the Teletype Corp. vacant ground adjoining the plant of the latter at 1400 Wrightwood avenue, Chicago.

* * *

CENTRAL TOOL CO., Oklahoma City, Okla., manufacturer of oil field drilling tools, has completed its plant adjacent to the Oklahoma City oil field, comprising a main plant building and a heat treating and blacksmith shop. All machinery is electrically operated. Offices have been established at 906 Colcord building, in charge of E. W. Hughes, while the shop is under supervision of R. A. Painter, formerly of the Painter Tool & Supply Co.

* * *

JANESVILLE FOUNDRY & MACHINE CO., Janesville, Wis., has been organized by A. W. Schlueter, owner of the Schlueter Boiler Works, and Walter Reynolds of Beloit, Wis., and has taken over the foundry of the New Doty Mfg. Co. at 301-321 North Main street, Janesville, which has been idle for some time. The concern will specialize in gray iron castings for local and nearby industries, including the Northern Conveyor & Mfg. Co., Rock River Engineering Co. and others. Mr. Schlueter will continue to operate his boiler works, Mr. Reynolds being actively in charge of the foundry business.

* * *

LAMSON & SESSIONS CO., of Cleveland, has let the contract for its plant at North Birmingham, Ala., to the Johnson Construction Co., Birmingham.

* * *

APEX ELECTRICAL MFG. CO., Cleveland, is acquiring the plants, patents and goodwill of the Johnson Washer Co., Oakland, Calif. This will make the sixth plant acquired and operated by the Apex company.

* * *

GREEN ENGINEERING CO., East Chicago, Ind., a subsidiary of the Combustion Engineering Corp., Philadelphia, has closed its plant and activities have been transferred to the latter company's plant at Philadelphia. Calumet Foundry & Machine Co. has leased the plant at East Chicago.

* * *

RUST ENGINEERING CO., Pittsburgh, has been awarded a contract for five continuous recuperative tube preheating furnaces for the Lorain, O., and McKeesport, Pa., plants of the National Tube Co. These furnaces will have a heating capacity in excess of 250 tons of tubes per hour. Each furnace will include the refractory tile recuperator for preheating the air for combustion, sold by the Rust company. American Rolling Mill Co. has placed a contract with the Rust company for a 4-hole regenerative soaking pit for the former's Columbia plant at Butler, Pa. This contract is for the complete pit, including stack and additional producer gas flues.

* * *

DALLAS BRASS & COPPER CO., Chicago, C. D. Dallas president, has let contracts for three additional buildings at its plant at Sixty-sixth and Grand avenues. These supply an addition to the brass mill and a building for the carpenter shop and for the engineering department and machine shop. Plans are being outlined for additional buildings eventually to cover the entire 25-acre tract. The company was founded in 1907, and in 1925 the first structures of the present plant were erected on a 12-acre site, which has been enlarged to 25 acres. The former plant on Orleans street is devoted to general offices and departments fabricating brass and copper products and lock seam tubing.

Genoa, Milan and Turin are the chief centers of machinery manufacture in Italy, more than half of this industry being concentrated in northern Italy.

European Market Activity Slackens

Holidays and Keen Competition from Continent Adversely Affect British Iron and Steel—Germans Sell Large Orders for Beams to Argentina

European Headquarters,
IRON TRADE REVIEW,
Caxton House, Westminster, S. W.1

LONDON, Aug. 6.—(*By cable*)—Holiday influences have affected the British iron and steel markets slightly, but prices continue firm. Two blast furnaces in the northern district are being relighted due to increasing demand for pig iron. Exports of iron are dull, and the total for July is estimated to be less than that for June. Sales of hematite are slackening while makers are seeking to obtain higher prices. Orders for pig iron in the midland are well sustained despite the recent advance. Coke prices are higher.

Demand for finished steel in the Barrow district is dull. Rail and bar mills have closed for a week. Sales of structural steel are improving. The market for galvanized sheets is quiet. Production of tin plate has been reduced. The market for semifinished steel is affected by severe competition from the continent.

The downward trend of prices in Belgium is believed to have been checked, according to IRON TRADE REVIEW'S correspondent at Brussels. Sales of finished steel are quiet.

A report from Paris states that exports are slow. The weekly report from Berlin states heavy orders have been placed for beams for delivery to the Argentine. Pig iron and hematite prices are weak.

Light Export Demand Dulls European Market

LONDON, July 26.—(*European Staff Service*)—Seasonal conditions are exerting an influence on export trade, which is reported to be quiet from practically every producing country. A certain amount of inquiry is being received by British iron and steel makers, and little interest has been shown by Japan. Of course, conditions in China are such as to preclude prospects of even a little business being done with that market for the present.

British engineering firms recently have received a number of interesting export contracts: Sir W. G. Armstrong, Whitworth & Co., Ltd., Newcastle-on-Tyne, have obtained an order for a motor-driven oil tank vessel of 8800 tons for Scandinavian owners; Furness Shipbuilding Co. Ltd. has been awarded an order for a 16,000-ton oil tanker for a Danish owner; North British Locomotive Co. Ltd., Glasgow, has obtained a contract for nine locomotives for India; Vulcan Foundry Ltd. has booked five locomotives for the Nizam's Guaranteed State Railways; Metropolitan-Cammel Carriage, Wagon & Finance Co. Ltd., Birmingham, has obtained a contract for 150 cattle cars for South Africa and 28 suburban railroad cars for the South African Railways; Birmingham Railway Carriage & Wagon Co. Ltd. has received an order for 250 cattle cars for South Africa.

Dorman, Long & Co. Ltd. have obtained the contract for the Memorial Road bridge across the Chow Phya at Bangkok; Redpath, Brown & Co. Ltd., London, have been awarded the contract for the steelwork needed for the erection of the new Ford motor works at Dagenham, Essex; Dorman, Long & Co. Ltd. have received an order for steel beams for the Egyptian State Railways; the Stanton Ironworks Co. Ltd., near Nottingham, has obtained a contract for about 40 miles of cast iron pipe for the Montevideo

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, August 5	*British* Gross Tons U. K. Ports		*French* Metric Tons Channel Ports		*Belgium and Luxemburg* Metric Tons Channel Ports		*German* Metric Tons Rotterdam or North Sea Port	
Export Prices f. o. b. Ship at Port of Dispatch—By Cable								
PIG IRON		£ s d		£ s d		£ s d		£ s d
Foundry No. 3, Silicon 2.50-3.00	$17.58	3 12 6*	$16.98	3 10 0	$16.98	3 10 0	$17.46	3 12 0
Basic	16.61	3 8 6	17.10	3 10 6	17.10	3 10 6	16.73	3 9 0
Basic-bessemer	18.43	3 16 0†	17.10	3 10 6	17.10	3 10 6	16.73	3 9 0
Hematite, Phosphorus 0.02-0.05	18.31	3 15 6	24.76	630*	.....	.....	17.70	3 13 0
SEMIFINISHED STEEL								
Billets	$32.13	6 12 6	$24.74	5 2 0	$24.74	5 2 0	$24.95	5 7 0
Wire rods	41.83	8 12 6	30.92	6 7 6	30.92	6 7 6	30.07	6 4 0
FINISHED STEEL								
Standard rails	$40.01	8 5 0	$31.53	6 10 0	$31.53	6 10 0	$31.53	6 10 0
Merchant bars	1.79c	8 5 0	1.25c	5 13 6	1.25c	5 13 6	1.28c	5 16 0
Structural shapes	1.60c	7 7 6	1.15c	5 4 3	1.15c	5 4 3	1.14c	5 4 0
Plates, ship, bridge and tank	1.76c	8 2 6	1.41c	6 7 9	1.41c	6 7 9	1.40c	6 7 0
Sheets, black, 24 gage	2.17c	10 0 0	2.37c	10 15 0	2.37c	10 15 0	2.33c	10 12 0
Sheets, galvanized, 24 gage, corrugated	2.90c	13 7 6	3.01c	13 13 9	3.01c	13 13 9	3.08c	14 0 0
Bands and strips	2.17c	10 0 0	1.31c	5 19 6	1.31c	5 19 6	1.32c	6 0 0
Plain wire, base	2.06c	9 10 0	1.65c	7 10 0	1.65c	7 10 0	1.69c	7 14 0
Galvanized wire, base	3.04c	14 0 0	1.62c	7 7 6	1.62c	7 7 6	2.13c	9 14 0
Wire nails, base	2.39c	11 0 0	1.76c	8 0 0	1.76c	8 0 0	1.79c	8 3 0
Tin plate, base box 108 pounds	$ 4.43	0 18 3	.....	.....	.....	.....	$ 8.97	1 17 0

*Francs

Domestic Prices at Works or Furnace—Last Reported			Francs		Francs		Marks	
Foundry No. 3 Pig Iron, Silicon 2.50-3.00	$17.58	3 12 6	$18.66	475(2)	$17.24	620	$20.26	85
Basic pig iron	16.61	3 8 6	20.4	510(1)	17.38	625	$21.69	91
Furnace coke	3.76	0 15 6	6.29	160	5.84	210	5.13	21.50
Billets	32.13	6 12 6	24.36	620	23.35	840	28.85	121
Standard rails	1.79c	8 5 0	1.46c	810	1.63c	1,250	1.51c	140
Merchant bars	1.84c	8 10 0	1.34c	745	1.35c	1,040	1.52c	141
Shapes	1.76c	8 2 6	1.26c	700	1.24c	950	1.49c	138
Plates, ship, bridge and tank	1.93c	8 17 6‡	1.49c	790	1.48c	1,140	1.71c	158
Sheets, black, 24-gage	2.28c	10 10 0	2.87c	1,595	2.73c	2,100	2.43c	225
Sheets, galvanized 24 gage, corrugated	2.90c	13 7 6	3.68c	2,045	3.58c	2,750	3.78c	350
Plain wire	2.06c	9 10 0	1.94c	1,075	2.15c	1,650	2.48c	230
Bands and Strips	2.17c	10 0 0	1.51c	840	1.53c	1,175	1.77c	164

*Middlesbrough; †Scotch foundry iron; ‡delivered; (1) Basic-bessemer; (2) Longwy. British export furnace coke £0 15s 6d ($4.00) f. o. b. Ferromanganese £21 13s, 0d ($105.00) delivered Atlantic seaboard, duty-paid. German ferromanganese £15 0s 0d ($72.75) f. o. b.

The equivalent prices in American currency are in dollars per ton for pig iron, coke, semi-finished steel and rails; finished steel is quoted in cents per pound and tin plate in dollars per box. British quotations are for basic open-hearth steel; French, Belgian, Luxemburg, and German are for basic-bessemer steel.

water supply and 10 miles for the Rosario water supply.

On the continent, markets generally are reported calm. In Belgium, export business is quiet and merchant bars have receded by 1s (24.00c) per ton, the price now being quoted at £5 13s ($27.45) f.o.b. Antwerp. Since French and German works still are well placed on home and export orders, competition from those sources is not keenly felt in the Belgian market, but, on the other hand, Luxemburg competition is pretty keen, especially in regard to merchant steel. Pig iron prices remain at about £3 12s ($17.45) for foundry pig iron, 2.5 to 3 per cent silicon, and from £3 10s to £3 11s ($17 to $17.20) for basic pig iron. Competition from British pig iron producers is reported from the Belgian coast.

Conditions in France are calm and the home market also is quieter, as is usually the case at this time of year. In Germany, prices are subject to fluctuations, which are causing uneasiness among export merchants who have booked in advance at the higher levels and now are trying to relieve themselves of tonnage which has gone into stock at the ports.

German merchant bar exporters are up against competition from Luxemburg works, which are offering bars at £5 13s 9d ($27.50), but the Germans are endeavoring to maintain their price of £5 16s ($28.10). Some independent wire rod makers are offering their products at £6 4s ($30), while the official price of the syndicate is £6 5s ($30.20).

French Coke Rate High

Paris, July 22.—(*European Staff Service*)—The output of coke at French collieries during May was the highest in many months, except for March. Of coke imports, 337,927 tons came from Germany, 98,970 tons from Holland, 64,873 tons from Belgium, the remainder coming from Great Britain and other countries. Coke exports went mainly to Italy, Switzerland and Belgium. The following tables gives figures:

Mon. ave.	Production	Imports	Exports
1913	335,620	255,835	17,085
1926	313,950	462,915	39,320
1927	339,015	395,580	33,430
1928	366,660	447,330	34,810
1929			
Jan.	384,519	438,059	37,443
Feb.	360,182	400,848	34,165
March	411,328	419,478	22,941
April	394,392	503,473	34,557
May	406,170	499,824	26,312

Imports of metalworking machinery by India from April 1, 1927, to March 31, 1928 totaled 4,079,454 rupees, compared with 3,748,096 rupees in 1926-27.

British Prices Higher

London, July 22.—(*European Staff Service*)—Board of trade returns for June give average British export prices per gross ton for certain iron and steel products. These prices are compiled from actual contracts made several months ago, and this accounts for the difference between these quotations and the base prices regularly quoted in our columns.

Compared with those of the preceding month, prices in June this year showed an increase for every commodity mentioned, except tin plates, which were lower. In comparison with those of a year ago, prices were higher for foundry pig iron, black sheets, galvanized sheets and tin plates, but lower for beams, rails and plates.

	£	s	d	$
Foundry pig iron	3	18	2	18.95
Beams	9	4	5	44.72
Rails	8	12	0	41.71
Plates	10	2	1	58.22
Black sheets under ⅛-inch thick	12	4	2	59.21
Galvanized sheets	16	4	2	78.61
Tinplates	19	17	0	96.27

German Exports Larger

Berlin, July 16.—(*European Staff Service*)—Exports of iron and steel from Germany again reached a high figure during May, when exports of pig iron and ferroalloys amounted to 44,275 metric tons, the highest monthly tonnage since the beginning of the year, as compared with 35,904 tons, the previous high mark, in April. The principal items exported in May were: Merchant bars, hoops and bands, 143,117 tons; plates and black sheets, 66,778 tons; semifinished steel, 52,795 tons; rails and railroad track material, 48,146 tons; wire and wire rod, 44,731 tons; steel tubes, 37,584 tons; forgings, 20,939 tons. The tonnage of scrap exported in May was 12,041 metric tons.

The principal item imported in May was that of merchant bars, hoops and bands, 65,150 metric tons Imports of scrap were 42,014 metric tons. The following table gives figures in metric tons:

	IMPORTS		EXPORTS	
Mon. ave.	Pig iron	Other iron and steel	Pig iron	Other iron and steel
1926	9,230	95,890	42,730	402,905
1927	23,895	217,505	29,910	347,645
1928	25,535	174,250	24,585	394,575
1929				
Jan.	22,334	154,293	31,820	387,769
Feb.	10,595	101,257	20,861	320,451
March	12,394	112,161	27,090	319,172
April	12,729	141,971	35,904	583,556
May	11,495	158,787	44,275	542,840

Belgian Steel Market Weakens as Uncertain Factors Disturb Trade

BRUSSELS, July 20.—The Belgian iron and steel market is in an uncertain position. Arguments are being exchanged as to whether the industry is on the eve of a crisis or whether the period of large production experienced for some months past will continue. Reports from certain other iron and steel producing countries show signs of pessimism. Of course a number of events of world-wide importance would have a detrimental effect on the markets if they turn out contrary to expectations; among these are the ratification of French war debts, the new reparations settlement, and the trouble in the Far East between China and Russia.

In view of the small volume of orders recently received, and also because a number of works now are anxious to refill their order books, prices have been slipping, and in business transactions prices depend on circumstances. Merchant bars have dropped from £5 16s ($28) to £5 14s ($27.55) and even to £5 12s 6d ($27.25) per metric ton, f.o.b. Antwerp, the last-named price having been accepted for an order of 200 tons, in connection with which extras have been reduced by half. This is a sure indication that the market is weak.

Some business has been transacted in semifinished steel, but at lower prices, and two-inch billets now are down to £5 2s 6d ($24.80). The domestic price for two-inch billets is

Franc—2.78c

840 francs ($23.25), delivered to all parts of the country. Sheet bars are £5 4s ($25.15) and skelp is £6 ($29.10). The Acieries du Nord et de l'Est and Ougree-Marihaye are out for orders. There is practically no business in beams, especially in normal profiles. There have been some inquiries in the wire department, but little business has materialized. Belgian works are unfavorably impressed by the desire expressed by the Steel Nail Association of Great Britain and put before the board of trade, asking that imported wire nails should bear a mark under the merchandise marking act.

The International Chamber of Commerce has held its annual meeting at Amsterdam during the past week, and the principal subject was discussion of the new American tariff and the dangers it presents to European trade. Wire rod manufacturers met at Ostend July 11. No modification was made in prices, except for orders taken for Japan and China, in which case a decrease of 5s ($1.21) per ton was made, so that buyers may take advantage of the similar decrease made on freights. For third quarter it has been decided that wire rod mills shall operate at about 95 per cent of capacity.

Drawback Is Extended

Washington, Aug. 6.—Previous treasury decisions granting a drawback allowance on steel manufactured by the Crucible Steel Co. of America, at its various factories, with the use of imported tungsten or tungsten and ferrotungsten produced from imported tungsten ore, have been further extended by the department to provide for drawback allowance on nickel alloy steel manufactured with the use of imported nickel or nickel commodities manufactured from imported nickel by firms operating under drawback regulations.

More Secondary Metals Recovered in 1928

Value of certain nonferrous metals recovered from secondary sources in 1928 is reported to the United States bureau of mines, department of commerce, as $277,623,500, which is $21,271,500 more than in 1927. This increase in total value was due mainly to larger recoveries of copper, brass, lead and nickel, and to the higher average price of copper in 1928, for the average prices of lead, zinc and tin were considerably less in 1928 than in 1927. There were large gains in the quantity of secondary copper, lead and nickel in 1928, and small increases in the quantity of secondary zinc and aluminum, and small decreases in the quantity of tin and antimony. The quantity of copper, including that in brass, increased more than 46,000 tons. Statistics for 1928 follow:

	1928	
	Short tons	Value
Copper, including that in alloys other than brass	325,000	$ 93,600,000
Brass scrap remelted	302,000	70,935,200
Lead as metal	138,000	
Lead in alloys	170,600	38,797,600
Zinc as metal	70,700	
Zinc in alloys other than brass	12,500	10,162,600
Tin as metal	8,200	
Tin in alloys and chemical compounds	27,600	35,678,300
Antimony as metal	745	
Antimony in alloys	11,155	2,451,400
Aluminum as metal	24,500	
Aluminum in alloys	23,300	22,848,400
Nickel as metal	635	
Nickel in nonferrous alloys and salts	3,865	3,150,000
		$277,623,500

Machine Tool Sales To India Are High

Sales of foreign-made metalworking machinery to India during 1927-28, the last period for which detailed figures are available, showed a substantial increase over the preceding year, although they fell by 8 per cent under the peak reached during 1925-26, according to reports of the industrial machinery division, department of commerce, Washington. The heaviest shipments were through the port of Bombay, which handled over 50 per cent of the total imports.

Form Carbide Company

New York, Aug. 6.—Midwest Carbide Corp. has been organized by the National Lead Co. and Shawinigan Products Corp., New York, a subsidiary of the Shawinigan Water & Power Co. of Canada, to manufacture calcium carbide at Keokuk, Iowa. Heretofore this business has been conducted by United Lead Co., subsidiary of National Lead Co. The product will be distributed exclusively through Shawinigan Products Corp., which has acted in the same capacity for United Lead for several years.

Officers of the new company will be from the staffs of the owning interests, E. J. Cornish, president of the National Lead, becoming president and L. F. Loutrel, vice president and general manager of the new company, and T. F. Wettstein of United Lead, continuing in direct charge of manufacturing operations, also with the title of vice president.

Europe Short of Scrap

The scrap iron shortage under which the German iron and steel industry has been suffering during the past few years is now believed by some German authorities to be a permanent condition, the department of commerce is advised by James E. Wallis Jr., American trade commissioner at Berlin.

Regulations in effect for some years concerning export of scrap from Germany were made more stringent this year. Practically every European country is in the same condition; it has been necessary to increase production of pig iron as a substitute for scrap. This condition brings with it an increased demand for ores and it can easily be seen that any disturbance in the European iron ore supply such as the strike of the Swedish miners in 1928 has a direct bearing on the scrap situation.

Czechoslovakian steel works produced a record tonnage of pig iron and steel in April. Production included 141,000 metric tons of pig iron and 191,000 tons of steel, compared with 138,000 and 181,000 tons in March, and 118,000 and 149,000 tons in April, 1928.

Metallurgical Limestone Use Detailed

Approximately 24,000,000 tons of limestone is used annually in the United States, according to the results of a recent study conducted by the bureau of mines, Washington. The chief use is, of course, in the smelting of iron ores in blast furnace operation, smaller quantities being used in basic open-hearth steel manufacture and in smelting lead, copper and other nonferrous ores as well.

The bureau has compiled the results of its investigation in bulletin 299, "Metallurgical Limestone" which covers as completely as possible present knowledge of the utilization of metallurgical stone and of problems connected with its quarrying or mining and preparation.

Oliver Bowles, who is a mineral technologist, bureau of mines, is the author of the pamphlet which may be obtained from the superintendent of documents, government printing office, Washington, at a price of 10 cents.

Copper Output Soars to Record in 1928

Production of refined copper from domestic and foreign sources in 1928 was the largest on record, states the federal bureau of mines, department of commerce, Washington. In response to heavy demand, especially late in 1928, mine production was greatly increased. Smelter production necessarily was slower in responding. The increase in the price of electrolytic copper to a monthly average of 15.9 cents a pound in December, 1928, the highest since April, 1923, was instrumental in bringing forth increased production. Following are comparative statistics by the federal bureau of mines:

	1927	1928
Production of copper:		
Smelter output, pounds	1,684,040,983	1,825,900,393
Mine production, pounds	1,649,959,370	(*)
Refinery production of new copper:		
Electrolytic, pounds	1,520,076,181	1,607,120,026
Lake, pounds	195,135,199	179,104,311
Casting, pounds	3,740,819	5,573,050
Total domestic, pounds	1,718,952,199	1,791,797,387
Total domestic and foreign, pounds	2,325,763,709	2,487,607,779
Total new and old copper, pounds	3,306,000,000	(*)
Ore produced:		
Copper ore, short tons	56,725,460	(*)
Average yield of copper, per cent	1.41	(*)
Copper-lead and copper-zinc ores, short tons	418,601	(*)
Average price per pound, cents	13.1	14.4
Imports (unmanufactured), pounds	718,322,990	787,073,640
Exports of metallic copper,† pounds	1,069,493,121	1,121,186,640
Withdrawn from total supply on domestic account:		
Total new copper, pounds	1,422,959,219	1,608,538,878
Total new and old copper, pounds	2,403,000,000	(*)
Stocks of refined copper,‡ pounds	171,000,000	114,000,000
Stocks of blister and materials in solution‡	401,000,000	423,000,000
Value of smelter production from domestic ores	$ 220,609,000	$ 262,930,000

*Figures not yet available.

†Total exports of copper, exclusive of ore, concentrates, composition metal and unrefined materials.

‡At the end of the year.

Machinery

Midsummer Recession Not Felt—Look for Increase in Production of Eight Cylinder Engines to Create Further Demand

ANY midsummer lull in machine tool buying which might be expected at this time appears to be conspicuous by its absence, a steady stream of inquiries from widely diversified sources keeping dealers and builders at their order books. Buyers apparently have become resigned to the deferred delivery situation and are anticipating requirements to a greater extent. Lathes of all types, planers, milling machines and shapers are leading the field in sales, with grinding machinery hard on their heels. The radio industry, anticipating a seasonal increase in activity, is buying more heavily. Considerable volume of machinery is being purchased without the customary issuing of lists. A 10 per cent advance in the price of planers is named by some dealers.

New York, Aug. 6.—Machine tool buying continues heavy with indications now that the usual midsummer lull will not develop. There has been some improvement in delivery in spots, but this situation is not general. Demand is well spread and covers a wide range of industries. Buyers of equipment appear to have reached the conviction that deliveries are not likely to be improved materially for some weeks at least and are inclined to anticipate requirements to a greater extent. There has been some improvement in the demand for punches and shears, while standard machinery activity shows little sign of abatement. Lathes of all types, planers, milling machines and shapers lead in sales with grinding machinery and brakes next in order. General Electric Co. placed more business against its recent list including several lathes. Western Electric Co. bought for both its Baltimore and Kearny plants. Certain sections at the latter plant, recently acquired from the Ford Motor Co., are being tooled. A moderate spurt has been noted in buying and inquiry from the radio industry in anticipation of the seasonal increase in activity. E. I. du Pont de Nemours & Co. also is reported to have purchased a small list of tools. Considerable volume is being placed without the formality of issuing lists. In such cases the equipment buyer is placing business direct with some manufacturer known well to him. One large dealer, doing the best July in his history, estimates that more than 80 per cent of the business was outside lists and included one complete equipment order for a machine shop.

Worcester, Mass., Aug. 6.—Machinery production continues at a high rate. Supported by the belief, now held in foreign quarters likewise, that automobile production may soon become more general on an eight cylinder basis, manufacturers are looking toward the last half of the year with assurance that its quota of production will uphold the remarkable record of the first half, with the added possibility that the automotive trade soon may make heavy demands for machinery.

Pittsburgh, Aug. 6.—Activity in the machine tool market is holding surprisingly well and in addition to a fairly substantial volume of pending business a steady rate of inquiry prevails. Delivery on practically all types of equipment still is deferred with shipments extended as far as four and five months on some tools, notably horizontal boring mills. There is a lack of outstanding large lists in new inquiry but a fairly large number of tools remains to be placed by several buyers.

Cleveland, Aug. 6.—No letup has appeared in the machinery market, sales for the first week in August continuing in good volume. Totals for the corresponding period last year generally are being exceeded. Deliveries continue well on toward the end of the year. Prices are practically stationary after trending upward two weeks ago. One builder plans an advance in quotations for the first of the year.

Chicago, Aug. 6.—Slightly more interest is being shown in machine tool buying, and fresh inquiries are picking up, although no outstanding railroad or industrial lists are before the trade. Inquiries come from diversified sources. Much pending business has been carried over from July, and it is indicated billings this month may be among the highest this year. Several larger buyers in the Chicago district have closed on projects that had been pending for some time. Western Electric Co. has entered the market again. Sales of presses, upright drills, lathes and milling machines have been active. Tool and die shops continue their usual volume of orders. St. Paul railroad has placed an order for a special planer, and Northern Pacific is inquiring for two lathes for delivery at St. Paul, Minn. Deliveries for some machines are being extended to December and until after Jan. 1, 1930. Radial drills and shapers are much deferred. The advance of 10 per cent in the price of planers has been extended, and four builders now are naming the higher quotations.

CRANE ORDERS PLACED

Three 5-ton 3-motor double girder cranes for unstated interest to H. D. Conkey & Co.

Three 2-ton wall bracket jib cranes for Nash Engineering Co., South Norwalk, Conn., to H. D. Conkey & Co.

Two 3-ton single I-beam underhung electric cranes for Miehle Fritning Press & Mfg. Co., Chicago, to H. D. Conkey & Co.

Two 1½-ton mast-type jib cranes and one 2-ton self supporting jib crane for Knowles Foundry & Machine Co., Ottawa, Ill., to H. D. Conkey & Co.

Two single I-beam handpower cranes, one 2-ton and one 4-ton, to Rockford Drop Forge Co., Rockford, Ill., to H. D. Conkey & Co.

Two 3-ton wall bracket jib cranes for unstated interest to H. D. Conkey & Co.

Among single orders placed were: 15-ton crawler speed crane for Garofano Construction Co., Mt. Vernon, N. Y., to Forsythe Bros.; 10-ton double girder two-speed wire rope drum crane for unstated interest; 6-ton double girder two-motor crane for Brennan Stone Co., Bridgeport, Conn.; 6-ton single I-beam underhung electric crane for D. O. James Mfg. Co., Chicago; 3-ton three-motor crane for Central Steel & Wire Co., Dayton, O.; 1-ton single I-beam hand geared crane for Micro Machine Co., Bettendorf, Iowa; 1-ton-double-girder handpower crane for unstated interest; wall bracket jib crane for Teletype Corp., Chicago; all to H. D. Conkey & Co.

Automatic Safety Brake for Hoisting Engines

An automatic safety brake for hoisting engines that is designed to minimize the danger of accidents occurring during the process of raising building materials to the upper floors of tall buildings under construction, has been devised by Robert C. Post, vice president, Post & McCord, New York, steel constructors. Most of the present types of hoisting engines have only one service brake, operated by a foot pedal. The new device adds a second brake, controlled electrically, which sets when the current is cut off from this controller. It may be set through three different causes, removal of pressure from the pedal of the service brake, blowing out of a fuse on the line supplying the driving motor, and opening of a hand switch provided on the current supplying line.

Schedules Meeting Dates

Future meetings of the American Institute of Electrical Engineers as decided upon to date and which cover the year from July, 1929 to June, 1930, inclusive, are as follows: Sept. 3-6, annual Pacific coast convention, Santa Monica, Calif.; Dec. 2-4, district meeting, Chicago; Jan. 27-31, annual winter convention, New York; May 7-10, district meeting, Springfield, Mass.; and June 23-27, annual summer convention, Toronto, Ont. F. L. Hutchinson, 33 West Thirty-ninth street, New York, is secretary of the institute.

CONSTRUCTION and ENTERPRISE

Concise Timely Business Building Opportunities from Field of Industry

East Central

CHICAGO—Black Products Co., 13513 Calumet avenue, manufacturer of foundry supplies, has awarded contract for a 4-story plant addition, 55 x 63 feet.

CHICAGO—Goodman Mfg. Co., 4834 South Halsted street, manufacturer of coal mining machinery, has awarded contract for a 1-story plant addition to Jacobson Bros., 53 West Jackson boulevard, Chicago.

CHICAGO—Dallas Brass & Copper Co., 820 Orleans street, advises it has awarded contracts for three additions to its rolling mills at East Sixty-sixth street and Grand avenue. One will be an addition to the brass mill, while the others will be built for the carpenter shop, and to house the engineering department and the machine shop. Plans are being prepared for additional units which will eventually occupy the entire 25-acre tract.

CICERO, ILL.—Taylor Forge & Pipe Co., West Fourteenth street, is having plans prepared by Weiss & Neistadt, architects, 53 West Jackson boulevard, Chicago, for a 1-story plant addition.

ALEXANDRIA, IND.—General Insulating & Mfg. Co. has started construction of a plant addition, 85 x 150 feet. Machinery will be purchased, according to O. F. Mottweiler, general manager.

FT. WAYNE, IND.—Kunkle Valve Co., 119 North Clinton street, has awarded contract for a 2-story garage and service building. Estimated cost about $50,000.

FT. WAYNE, IND.—Inca Mfg. Co., recently organized by George A. Jacobs, founder and formerly president of the Dudlo Mfg. Co., to manufacture wire, windings, etc., has started construction of a plant on an 11-acre tract here. (Noted Aug. 1.)

SOUTH BEND, IND.—Edwards Iron Works has started construction of several plant buildings including a power house. Two warehouses, one 80 x 562 feet and the other 40 x 360 feet will be equipped with cranes and conveying machinery, a shop building, 186 x 325 feet, will also be equipped with 8 electric cranes.

BERRIEN SPRINGS, MICH.—Clark Transmission Co. will soon break ground for a new plant addition, which will practically double the present space, according to E. C. Pascoe, superintendent.

DEARBORN, MICH.—Ford Motor Co. has awarded contract for an addition to its airplane plant, 132 x 620 feet, to the J. W. Butler Construction Co., Free Press building, Detroit. (Noted June 13.)

DETROIT—National Twist Drill Co., 6522 Brush street, has plans for construction of a plant addition.

DETROIT—Watson Bros. Steel Co., 2001 Vulcan street, has awarded contract for an office and warehouse, 50 x 200 feet, at Ryan road and Detroit Terminal railroad to the C. O. Barton Co., 1900 East Jefferson avenue.

DETROIT—Grand Laundry, 1250 West Lafayette street, closed bids July 29 through Mildner & Eisen, architects, Hammond building, for a power house, 44 x 44 feet, at Howard and Brooklyn avenues.

DETROIT—Leo M. Bauer, architect, Free Press building, is preparing plans for an undisclosed party, for a one and 2-story office and warehouse, 115 x 300 feet, to be built on Buffalo and Holbrook avenues, Hamtramck. Loading wells and heavy duty scales are included in the plans.

GRAND RAPIDS, MICH.—Whitmar-Leonard Inc., 17 Williams street, recently incorporated to manufacture motorless aircraft, advises it has a plant which it expects to expand in September.

JACKSON, MICH.—Wolverine Carburetor Co. of Michigan has completed arrangements for taking possession of the plant formerly occupied by the J. C. Mfg. Co., where it will soon start to manufacture carburetors. Warren W. Mitchell, Montgomery, Mich., is vice president.

LANSING, MICH.—Olds Motor Works will build a 3-story service parts building, 130 x 420 feet. About one-third of the first floor space will be used as a machine shop. (Noted June 13.)

MUSKEGON, MICH.—Muskegon Motor Specialities Co. has awarded contract for a plant addition to the Strom Construction Co., Pine and Western avenues, Muskegon. (Noted June 6.)

SAGINAW, MICH.—Baker Perkins Co., Hess & Williamson streets, manufacturer of baking machinery, awarded contract for a 1-story plant addition to the Trier Construction Co., 2113 Court street.

ASHTABULA HARBOR, O.—Cleveland Electric Illuminating Co., Cleveland, has awarded contract to the Hunkin-Conkey Construction Co., East Fifty-fifth and Lakefront streets, Cleveland, for construction of its new power plant here. (Noted May 9.)

CANTON, O.—Timken Roller Bearing Co., Dueber avenue southwest, has purchased a 54-acre tract near Bolivar, O., where it will construct a power plant.

West Central

WATERLOO, IOWA—Chamberlain Corp., formerly the Chamberlain Machine Works, plans starting construction at once on a plant addition, 100 x 200 feet.

MARYSVILLE, KANS.—Kansas Power & Light Co., Topeka, Kans., plans construction of a hydroelectric plant here. Estimated cost about $200,000.

WICHITA, KANS.—Wichita Imblum Aero Corp., recently formed to manufacture airplane engines, contemplates building a manufacturing plant in the fall. Leo Imblum is president.

ST. PAUL—Minnesota Mining & Mfg. Co., 691 Forest street, manufacturer of abrasives, awarded contract for a 2-story plant addition to W. M. Murphy & Son, Pioneer building. Estimated cost about $150,000.

ST. LOUIS—Ryan Aircraft Corp., Lambert-St. Louis Flying Field, through Douglas W. Clephane, advises while it has plans for expansion they are still incomplete.

ST. LOUIS—Pierce Petroleum Corp., 1709 Locust street, has awarded contract for a 1-story warehouse, 69 x 119 feet, to the Fruin-Colnon Contracting Co., Merchants-Laclede building.

ST. LOUIS—Sunnen Products Co., 6417 Dale avenue, manufacturer of automobile accessories, will soon take bids for a 1-story plant, 120 x 168 feet, in Maplewood, a suburb. Estimated cost about $65,000.

ST. LOUIS—Mack-International Motor Truck Corp., 3300 Wentworth avenue, Chicago, is receiving bids through H. E. Foster, architect, 400 West Madison avenue, New York, for construction of an assembly and service building here. Estimated cost about $250,000.

OMAHA, NEBR.—Board of trustees, Creigh-

ton University Twenty-fifth and California streets, has plans for construction of a power plant for the institution to cost about $100,000 with equipment. L. A. Daly, Peters Trust building, Omaha, is architect.

OMAHA, NEBR.—Senator R. B. Howell of Nebraska will ask for an appropriation of $10,000,000 for a publicly owned power plant on the Platte river, in Nebraska, probably at the next regular session of congress. Army engineers are making a survey of the river.

ELLENDALE, N. D.—City voted upon and approved plans for construction of a municipal electric light plant.

Southern States

BIRMINGHAM, ALA.—Lamson & Sessions Co., 1971 West Eighty-fifth street, Cleveland, awarded contract for a plant addition here to the Johnson Construction Co., Birmingham. (Noted July 18.)

RUSSELLVILLE, ARK.—City is having plans prepared for a power plant and distributing system estimated to cost about $150,000. W. L. Winters, Merchants Bank building, Fort Smith, Ark., is engineer.

EUNICE, LA.—Eunice Iron Works, which recently took over the Eunice Machine Shop, has started construction of an addition, 38 x 110 feet. Additional equipment will be needed. J. H. Johnston is manager of the new company.

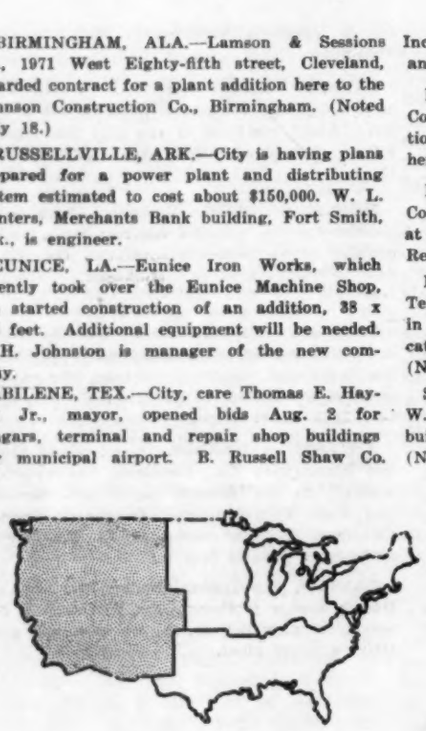
ABILENE, TEX.—City, care Thomas E. Hayden Jr., mayor, opened bids Aug. 2 for hangars, terminal and repair shop buildings for municipal airport. B. Russell Shaw Co. Inc., 810 Olive street, St. Louis, is architect and engineer. (Noted June 13.)

BEAUMONT, TEX.—Gulf States Utilities Co., 362 Liberty street, has plans for construction of additional units to its power station here.

DALLAS, TEX.—Dallas Airports Utilities Corp. will shortly let contract for large hangar at Love field to cost $75,000. Rhodes S. Baker, Republic Bank building, is attorney.

DALLAS, TEX.—Texas Aero Corp., Temple, Tex., plans installation of power equipment in airplane manufacturing plant to be located here. George W. Williams is president. (Noted May 23.)

SAN ANTONIO, TEX.—B. Hammond, care W. S. Forester, Travis building, advises he will build a plant for manufacture of airplanes. (Noted Aug. 1.)



Western States

SAN FRANCISCO—City has plans for construction of a power plant at Don Pedro reservoir with a capacity of 25,000 kilowatts, according to Nelson A. Eckart, assistant city engineer. Estimated cost about $1,000,000

STOCKTON, CALIF.—Sierra Aircraft Industries is being formed to take over the Aircraft Industries of San Leandro and the Modesto Airport Corp. The new company, capitalized at $500,000, will manufacture airplanes and construction of a plant at Modesto airport, near here, is expected to be started within 90 days. Edwin R. Hawk is a director.

THATCHER, COLO.—Kentucky-Colorado Helium Co., care O. A. Rosebush, Thatcher, has plans for construction of a 1-story and basement helium plant, 80 x 100 feet. Estimated cost about $100,000.

GREAT FALLS, MONT.—Montana Power Co. announces it will construct a $250,000 switching station at Rainbow dam.

PORTLAND, OREG.—Plant of the Pacific Coast Tanning Co., 892 Camino avenue, was damaged by fire July 25. Estimated loss of $175,000. Machinery and equipment were not insured.

PORTLAND, OREG.—P. & C. Hand Forged Tool Co., Milwaukie, Oreg., announces expansion plans to involve either a new building or addition to the present plant.

BAKER, OREG.—Stevens & Koon, consulting engineers, Portland, Oreg., have been retained to make a survey of the city's water system. If found feasible, it may be decided to erect a municipal power plant.

SALT LAKE CITY, UTAH—Packard Motor Sales Co., Second and South Temple streets, plans construction of a 2-story salesroom and shop, 165 x 165 feet. Estimated cost about $150,000.

SEATTLE—Aircraft Plywood Corp., Fifteenth avenue northwest, a new company, will install power plant in its proposed plant, which is to be built at once. J. C. Sams is secretary.

SPOKANE—G. A. Pehrysn, Spokane & Eastern building, is preparing plans for a power plant for the Pend Oreille Mines & Metals Co., to be constructed on Flume creek, near Metaline Falls, Wash.

SNOHOMISH, WASH.—Officials of the Snohomish Iron Works, recently damaged by fire, announces plans for rebuilding with sheet metal construction. (Noted Aug. 1.)

STEVENSON, WASH.—Possibilities of a municipally owned light and power plant and water system are being investigated by a chamber of commerce committee.

TACOMA, WASH.—Frank Sussman, dealer in old metals and machinery, will erecet a $30,000 warehouse at 2152 Pacific avenue.

TACOMA, WASH.—Announcement is made that International Harvester Co., 606 South Michigan avenue, Chicago, will establish a branch here. A site at Puyallup avenue and A street, has been acquired on which a suitable building will be erected for occupany not later than Dec. 1.

Canada

CALGARY, ALTA.—Western Steel Products Ltd., Winnipeg, Man., has acquired property adjacent to its plant here and will build a plant addition.

CHASE, B. C.—Lorne A. Campbell, general manager of the West Kootenay Power and Light Co., stated that his company will spend $2,000,000 on the developing of 20,000 horsepower on the Adams river near here.

BRANTFORD, ONT.—Plans are being prepared by F. C. Bodley, architect, Temple building, for the erection of a substation in the Holmedale district here, for the Brantford hydroelectric system. Prices on equipment, etc., are being received by Fred C. Harp, chairman of the commission.

BRANTFORD, ONT.—A. G. Spalding & Bros. of Canada Ltd., 5 Edward street, manufacturers of sporting goods, etc., have awarded contract to Schultz Construction Co., 45 Albion street, for the erection of a 1-story plant addition to cost $40,000.

FORT, ERIE, ONT.—Consolidated Aircraft Corp., 2050 Elmwood avenue, Buffalo, will build a branch plant on recently acquired property on Garrison road here. Construction plans are still indefinite.

NIAGARA FALLS, ONT.—Several contracts have been awarded in connection with $150,000 plant on Thorold avenue for the Lionite Abrasives Ltd., College avenue, Niagara Falls, N. Y. The Standard Steel Construction Co., Welland, Ont., has the steel contract. (Noted July 18.)

PRESTON, ONT.—Canadian Office & School Furniture Co., 1195 King street, has started work on excavation in connection with the erection of a 1-story, 70 x 93 foot, plant addition to cost $40,000.

REGINA, SASK.—It is reported that the Chrysler Corp. of Canada propose to establish a plant here and is arranging for a suitable site.

SASKATOON, SASK.—Western Steel Products Ltd., Winnipeg, Man., has purchased a tract on First avenue and proposes to build a modern sheet metal plant in the early future.

North Atlantic

EAST HARTFORD, CONN.—Chance Vought Corp., airplane manufacturer, subsidiary of the United Aircraft Corp., will build a plant adjoining the United Aircraft plant at East Hartford.

TOWSON, MD.—Black & Decker Co., manufacturer of electric drills, etc., advises it has just completed a 2-story plant addition, 200 x 200 feet, and is starting another 2-story addition, 140 x 200 feet.

MITTINEAGUE, MASS.—Strathmore Paper Co. will soon start construction of a power plant, 54 x 60 feet.

WORCESTER, MASS.—Worcester Pressed Steel Co. will construct a plant building to be used for pickling steel. Estimated cost $23,000.

BLOOMFIELD, N. J.—Westinghouse Lamp Works has awarded contract for a 5-story extension to building No. 12 and a 4-story addition, 50 x 200 feet, to the present one story building, to the White Construction Co.

NEWARK, N. J.—Westinghouse Electric & Mfg. Co., 95 Orange avenue, main offices, East Pittsburgh, Pa., which recently acquired a 22-acre tract here, has plans for construction of a plant to cost about $8,000,000.

ORADELL, N. J.—Bergen county, care M. Harkness clerk, Hackensack, N. J., will receive bids until Aug. 19 for construction of a central heating plant costing about $150,000. C. V. R. Bogert, 210 Main street, Hackensack, is architect.

PASSAIC, N. J.—William Wilhelm Co. Inc., 51 First street, has plans for a 1-story power plant to cost about $40,000.

BROOKLYN, N. Y.—American Metals Co., Clay street, has plans for construction of a one and 2-story plant addition. G. Erda, 788 Manhattan avenue, is architect.

BUFFALO—J. W. Pohlman Foundry Co., 205 Baitz avenue, has started construction of a 1-story plant addition, 30 x 84 feet.

BUFFALO—William F. Hengerer Co., department store, 465 Main street, will include a boiler plant with transformers and switches in its new addition.

BUFFALO—Joseph Spriesch, 133 South Elmwood avenue, manufacturer of dies and tools has plans for construction of a machine shop, 106 x 121 feet. George Setter, 67 Burch street, West Seneca, Buffalo, is architect.

BUFFALO—Stewart Motor Corp., 93 Dewey avenue, has plans for rebuilding motor repair shop recently damaged by fire, also additional plant buildings. Ray J. Stewart is vice-president. (Noted Aug. 1.)

BUFFALO—City, care of department of public works, room 3, Municipal building, will soon take bids for a marine airport at the foot of Georgia street. Plans include two 1-story hangars each 150 x 180 feet, and additional buildings. Col. Howard Beck, city architect prepared the plans.

ITHACA, N. Y.—Associated Gas & Electric Co., 123 South Cayuga street, is planning to spend more than $40,000,000 in additions to facilities and construction of new plants.

JAMESTOWN, N. Y.—Dahlstrom Metallic Door Co., Buffalo and Second streets, advises it will build a 1-story addition connecting two other buildings, also alter adjoining buildings. Plans have not been completed.

JAMESTOWN, N. Y.—Board of public utilities, Melvin O. Swanson, superintendent, awarded contract for a 1-story addition, 84 x 100 feet, to the lighting plant to L. H. Ludwig Inc., 929 Monroe street, at his bid of $98,045.

LOCKPORT, N. Y.—Simonds Saw & Steel Co., Ohio street, will soon have plans prepared for a 1-story plant addition, 30 x 40 feet. Probably mature in the fall.

NEW YORK—Hunter College, Park avenue and Sixty-eighth street, care E. H. Elliott, will soon take bids for a group of buildings including a power house. Estimated cost about $800,000. Thompson, Holmes & Converse, 101 Park avenue, are architects.

TONAWANDA, N. Y.—Frontier Fuel Oil Corp., care William H. Bennett, 968 Ellicott square, Buffalo, will close bids for a boiler house, pumping station and fuel tanks about Aug. 10. The company will probably build additional buildings at a later date.

BEAVER FALLS, PA.—Beaver Falls Airport Corp., recently incorporated, will build hangars and establish a flying school on a 300-acre tract near here. R. Smith Blackwood, Beaver Falls, is president.

NEW KENSINGTON, PA.—Aluminum Co. of America, Oliver building, Pittsburgh, has started construction of a machine shop, 130 x 482 feet, at its plant here. The shop will have an open working floor serviced by 50-ton cranes and a mezzanine floor for light tool equipment. The company is also building an addition, 155 x 425 feet, to its tube mill at Arnold. (Noted May 23.)

PHILADELPHIA—Quaker City Laundry, Forty-eighth and Chestnut streets, will soon award contract for a 2-story building including a power house, 50 x 100 feet.

PHILADELPHIA—F. & E. Aubel, 2503 Germantown avenue, ornamental iron works, contemplate building an office and plant building. Estimated cost about $50,000.

PHILADELPHIA—Reading Co., Reading Terminal, is taking bids for an electric car shop to be constructed at Wayne junction, from plans by Clark Dillenbeck. It will be a 1-story building, on a site 137 x 325 feet.

SCHUYLKILL HAVEN, PA.—Boro awarded contract for a 1-story addition to its electric light plant to Gordon Nagle, Morris building, Pottsville, Pa. (Noted June 27.)

PROVIDENCE, R. I.—Leonard-Rooke Co., 486 Broad street, manufacturer of valves, has plans for construction of a 3-story plant addition, 60 x 100 feet.

Recent Incorporations

SOUTHINGTON, CONN.—Plantsville Foundry has been incorporated with $50,000 capital to engage in a foundry and machine shop business. T. W. Thompson, Plantsville, Conn., is president.

CHICAGO—Sweepkey Corp., room 1060, 209 South LaSalle street, has been incorporated with 600 shares of no par stock to manufacture and deal in machines and equipment, by John Defoe.

CHICAGO—Carlton Plating Co., 2803 Cottage Grove avenue, has been incorporated with $15,000 capital to manufacture and sell iron and steel articles, etc., by Sam Lupesco.

CHICAGO—Chicago Rolling Mills, 229 North LaSalle street, has been incorporated with 300,000 shares of no par stock to manufacture iron, steel and other metals.

CHICAGO—Scientific Instrument Co., 5540 North Clark street, has been incorporated with $5000 capital to manufacture and deal in instruments, by M. W. Adams.

CHICAGO—Chicago Universal Sign Co., 4958 West Kinzie street, has been incorporated with $40,000 capital to manufacture and deal in signs, by Gilbert Thompson.

INDIANAPOLIS—Tool Engineering & Machine Co. has been incorporated with 3500 shares of no par stock to manufacture electrical and mechanical machinery. Earl M. Costin, Merchants Bank building, is one of the incorporators.

BOSTON—New England Automatic Corp. has been incorporated with 100 shares of no par stock to manufacture all kinds of appliances and mechanical devices. Joel H. Atwood, 39 Canterbury road, Newton Highlands, Mass., is president.

CAMBRIDGE, MASS.—Better Built Pumps Inc., 40 Dickinson street, has been incorporated with 6000 shares of no par stock to manufacture and deal in pumps, parts and other devices. Carroll G. Seward is president.

LYNN, MASS.—Swift Wing Aircraft Co., 458 Union street, has been incorporated with 5000 shares of no par stock to manufacture all types of aircraft and equipment. Isaac T. Johnston, 34 Mansfield street, is treasurer.

ROXBURY, MASS.—Eppy Co., 120 Longwood avenue, has been incorporated with 1000 shares of no par stock to manufacture and repair machinery, tools and appliances. Nat Epstein is president.

SOMERVILLE, MASS.—Highland Sheet Metal Works has been incorporated with $50,000 capital to conduct a general ornamental metal business. Victor Shulman, 102 Rosseter avenue, is one of the incorporators.

SPRINGFIELD, MASS.—Spencer Aircraft Engine Inc. has been incorporated with 100 shares of no par stock to manufacture all kinds of aircraft, motors and accessories.

Louis R. Spencer, 1331 Farmington avenue, Hartford, Conn., is president and treasurer.

DETROIT—Schmidt Products Inc., 6260 Russell street, has been incorporated with $100,000 capital to manufacture and deal in motors, engines and machinery, by L. O. Naylor.

DETROIT—Plant Holding & Development Corp., 9782 Goldsmith street, has been incorporated with $100,000 capital to provide facilities for an iron works, by C. E. Anderson.

DETROIT—Automatic Machine & Engineering Co., 679 West Kirby avenue, has been incorporated with $25,000 capital to engage in the general manufacture of machinery, by Jay L. Wells.

BILLINGS, MONT.—Central Sheet Metal Works has been incorporated with $50,000 capital to engage in the sheet metal business, by H. B. Stridiron.

EAST ORANGE, N. J.—Ampere Engineering Co. Inc. has been incorporated with $20,000 capital to engage in manufacturing, by A. Harvey Radden, 215 Montague street, New York.

JERSEY CITY, N. J.—Chameleon Novelties Corp. has been incorporated with $100,000 capital to manufacture fountain pens, by Percy Freeman, 1482 Broadway, New York.

NEWARK, N. J.—Globe Machine & Tool Co. Inc. has been incorporated with $125,000 capital to manufacture mill supplies, by Ernest P. Biro, 786 Broad street, Newark.

PASSAIC, N. J.—Columbia Sheet Metal Works Inc. has been incorporated with $25,000 capital to manufacture metal products, by Maurice Rosenberg, 175 Broadway avenue, Passaic.

TRENTON, N. J.—Allied Equipment Corp. has been incorporated with $125,000 capital to engage in the business of cabinet making, by Palmer & Palmer, Mount Holly, N. J.

UNION CITY, N. J.—Universal Lamp & Novelty Co. Inc. has been incorporated with 2500 shares of common stock to manufacture lamps, etc., by Isidore Dworkin, 68 Hudson street, Hoboken, N. J.

NEW YORK—Windsor Lamp Mfg. Co. has been incorporated with $10,000 capital, by M. Millimet, 11 Park place.

NEW YORK—Everware Nickel Plating & Chromium Co. has been incorporated with $10,000 capital, by M. M. Turshen, 16 Court street, New York.

NEW YORK—Rodale Mfg. Co. has been incorporated with $1,000,000 capital to deal in electrical devices, by Lowenthal, Hirsch & Whit, 52 Wall street.

SYRACUSE, N. Y.—Syracuse Gauge Mfg. Corp. has been incorporated with 500 shares of common stock, by L. A. Murphy, State Tower building.

LONDON, O.—London Furnace Co. has been incorporated with 5000 shares of no par stock, by Henry Junge.

GARBER, OKLA.—Garber Tool Co. has been incorporated with $250,000 capital to manufacture oil field tools, by George E. Failing, G. J. Taft and B. A. Garber.

MAUD, OKLA.—Western Machine & Tool Co. has been incorporated with $25,000 capital to operate a machine shop for repairing oil field tools,etc. J. A. Wright is one of the incorporators.

OKLAHOMA CITY, OKLA.—Safety Stop Line Marker Co. has been incorporated with $300,000 capital to manufacture metal stop signals, by Stanley Lewis, L. W. Drennan and J. C. Willingham.

OKLAHOMA CITY, OKLA.—Universal Spray Mfg. Co. has been incorporated with $50,000 capital to manufacture a mechanical spraying device, by R. S. Randerson, J. S. Ross and W. M. White.

TULSA, OKLA.—Safety Torpedo Shell Co. has been incorporated with $100,000 capital by B. D. Allen, Highland, Kans., and A. M. Widdows, 407 Philtower building, Tulsa.

VANCOUVER, B. C.—Gorst Air Transport Ltd. has been incorporated to manufacture and deal in airplanes, flying machines, airships, etc., with $100,000 capital stock by John B. Mulvey, Walter J. Gilhooly, and Edward A. Anglin, all of Ottawa.

HAMILTON, ONT.—Frid Construction Co. Ltd. has been incorporated to carry on the business as general contractor with $100,000 capital, by Oswald D. Peat, Robert P. McBride and Thelma G. Morton, all of Hamilton.

HAMILTON, ONT.—Grand River Motors Ltd. has been incorporated to manufacture and deal in automobiles, motors, engines, machines shares of no par stock, by Maxwell Aiken, etc. with a capital of $500,000 and 50,000 Lionel Davis and Harry J. Waldman, all of Toronto.

OTTAWA, ONT.—Shaver Bros. Ltd. has been incorporated to manufacture and deal in furnaces, stoves, ranges, etc., with a capital of $100,000 and 1000 shares of no par stock, by James W. York, Clarence C. Gibson and Henry A. Aylen, all of Ottawa.

OTTAWA, ONT.—Forsyth Automotive Pneumatic Spring Ltd. has been incorporated to manufacture pneumatic spring devices for vehicles, with $500,000 capital, by Albert E. Forsyth, Myles J. Shiels and Samuel R. Broadfoot, all of Ottawa.

TORONTO, ONT.—Automobile Radio Corp. of Canada Ltd. has been incorporated to manufacture and deal in automobiles, motors, engines, radio accessories etc., with $100,000 capital, by Lawrence Kert, David Sher, and Margaret Malone, all of Toronto.

WINDSOR, ONT.—Dominion Screw Products Co. Ltd. has been incorporated to manufacture and deal in nuts, screws, bolts, etc. with $100,000 capital. Russell A. Gunn, 2454 Chicago boulevard, Detroit, is one of the incorporators.

REGINA, SASK.—Model Construction Co. Ltd. has been incorporated with a capital stock of $124,700, and 3753 shares of no par stock, by George M. Bayne, Sydney J. Smith and Francis T. Clarke, all of Regina.

New Trade Publications

RIVETERS AND PRESSES—Hanna Engineering Works, Chicago, has issued a catalog of its riveters and presses, illustrated and fully descriptive of the devices.

BELT CONVEYOR CARRIER—A bulletin on its belt conveyor carrier has been issued by Stephens-Adamson Mfg. Co., Aurora, Ill., showing its installation in various industrial plants. Illustrations convey the idea of its use.

SPECIAL STEEL—A leaflet is being circulated by the Ludlum Steel Co. and other concerns licensed to manufacture Nirosta steel in the United States, calling attention to use of this material in the new Chrysler building in New York.

LUBRICATION—Texas Co., New York, in its series on lubrication discusses in the current number the relation of theory to practice in plain bearing lubrication. Like preceding issues this bulletin is illustrated by diagrams to make clear points discussed in the text.

ALUMINUM WELDING—Linde Air Products Co., Chicago, describes in a current bulletin its process of welding aluminum in all its forms by the oxyacetylene torch. Current practice in this class of welding is discussed and illustrations show welds made on various forms of material.

CENTRIFUGAL PUMPS—Ingersoll-Rand Co., New York, has issued a bulletin on multistage centrifugal pumps manufactured by the A. S. Cameron Steam Pump Works. It is illustrated by halftones of numerous installations and phantom views of the pumps. Details are also illustrated.

BOXES AND SKIDS—Wilder-Strong Implement Co., Detroit, argues in a current leaflet for the use of modern and strongly constructed boxes and skids for use with lift trucks in materials handling in industrial plants. Illustrations present various types of boxes and skids for a variety of purposes.

ELECTRICAL APPLIANCES—Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has issued a number of bulletins on various products of its plants. Recent issues include: Engine-driven arc welding set; super centrifuge oil purifier; storage battery locomotive; geared turbine-generator unit; single-operator welding set; drum controller. A booklet, "Registers of Revenue," is a current publication devoted to watt-hour meters, illustrated to show construction and operation. A discussion of this type of meter introduces the description.

CENTRIFUGAL PUMPS—Duriron Co. Inc., Dayton, O., in two current bulletins describes two types of its centrifugal pumps. Each is illustrated and contains charts and other engineering data. These pumps are designed for use with materials that are corrosive, the material resisting such action.

HEAT TREATING FURNACE—Enclosed front type heat treating and carburizing furnaces are described in a current bulletin by the W. S. Rockwell Co., New York. A cool front improves working conditions and the hot hearth is an advantage in use. The bulletin is illustrated by halftones and cross sections.

HYPOID GEARS—Gleason Works, Rochester, N. Y., discusses automotive hypoids, gives their characteristics, advantages over spiral gears, and shows by diagram how their teeth are generated. The subject matter is of interest to engineers and others working in the automotive field and coming in contact with gearing problems of any type.

In Buffalo~

BUFFALO STEEL SERVICE

This new community *Ward-House* is a prominent unit of the rapidly expanding group of community *Ward-Houses* of national scope, providing local service of outstanding merit.

C. G. Bothwell, Manager — Geo. L. Stewart, Ass't. Manager

EDGAR T. WARD'S SONS CO.

(Division of COLUMBIA STEEL & SHAFTING CO.)

BUFFALO WARD-HOUSE—39 River St.

BOSTON, 44 Farnsworth St.
CHICAGO, 1455 W. 37th St.
CLEVELAND, 1210 E. 55th St.
DETROIT, 1300 Fort St., West
MILWAUKEE—57 Ave. and Burnham St.
NEWARK, 400 Frelinghuysen Ave.
PHILADELPHIA, Cedar and Westmoreland Streets

The World's Largest Distributors of Fine Steel Products

Pipe and Tube Prices—Plate Extras

Steel Pipe

Pittsburgh and Lorain basing discounts, jobber's carloads.

Evanston, Ill., and Indiana Harbor, Ind., take differential 2 points less discount.

Chicago takes differential 2½ points less than Pittsburgh-Lorain basis.

Butt Weld

	Black	Galvanized
⅛-inch	45	19½
¼ and ⅜-inch	51	25½
½-inch	56	42½
¾-inch	60	48½
1 to 3-inch	62	50½

Lap Weld

2-inch	55	43½
2½ to 6-inch	59	47½
7 to 8-inch	56	43½
9 and 10-inch	54	41½
11 and 12-inch	53	40½

REAMED AND DRIFTED

Butt Weld

1 to 3-inch	60	48½

Lap Weld

2-inch	53	41½
2½ to 6-inch	57	45½

EXTRA STRONG—PLAIN ENDS

Butt Weld

⅛-inch	41	24½
¼ and ⅜-inch	47	30½
½-inch	53	42½
¾-inch	58	47½
1 to 1½-inch	60	49½
2 to 3-inch	61	50½

Lap Weld

2-inch	53	42½
2½ to 4-inch	57	46½
4½ to 6-inch	56	*45½
7 to 8-inch	52	39½
9 and 10-inch	45	32½
11 and 12-inch	44	31½

DOUBLE EXTRA STRONG

Butt Weld

½-inch	42	32½
¾ to 1½-inch	45	35½
2 to 2½-inch	47	37½

To large jobbers these discounts are increased by 1 point and two supplementary discounts of 5 per cent on black, and 1½ points and two supplementary discounts of 5 per cent on galvanized.

Wrought Iron Pipe

Pittsburgh basing discounts, jobbers' carloads. Individual quotations made on delivered basis.

THREADS AND COUPLINGS

Butt Weld

	Black.	Galv.
⅛ and ¼-inch	+11	+36
⅜-inch	23	5
½-inch	28	11
¾-inch	31	15
1 and 1¼-inch	35	18

Lap Weld

1¼ and 1½-inch	Upon application	
2-inch	23	9
2½ to 3½-inch	28	12
4 to 6-inch	30	17
7 and 8-inch	29	16
9 to 12-inch	26	11

REAMED AND DRIFTED

2-inch to 6-inch—Two points less than above

EXTRA STRONG, PLAIN ENDS

⅛ and ¼-inch	+13	+48
⅜-inch	23	7
½-inch	28	12
¾ to 2-inch	34	18

Lap Weld

2-inch	29	13
2½ to 4-inch	34	20
4½ to 6-inch	33	19
7 and 8-inch	31	17
9 to 12-inch	21	8

DOUBLE EXTRA STRONG

Butt Weld

½-inch	+47½	+59½
¾-inch	+28	+40
1-inch	+34	+46
1¼-inch	+28	+40
1½-inch	+27	+39

Lap Weld

2 and 2½-inch	+13	+25
3 to 4-inch	+ 8	+17
4½ to 6-inch	+ 9	+18
8-inch	+12	.....

Jobbers obtain additional preferential discounts of 1, 5 and 2½ on black and galvanized wrought iron pipe.

On extra or double extra strong pipe fitted with threads and couplings basing discount lowered 5 points from plain end price. Fitted with threads only, basing discount lowered 3 points for random lengths.

Boiler Tubes

Pittsburgh carload discounts

STEEL (Lap Weld)

2 and 2¼-inch	40 off
2½ and 2¾-inch	48 off
3-inch	54 off
3¼ to 3¾-inch	56 off
4-inch	59 off
4½ to 6-inch	48 off

Subject to two 5 per cent discounts on full carload shipments. On less than 10,000 pounds, base discount reduced 6 points and one 5 per cent allowed. Over 10,000 pounds to carload, base discount reduced 4 points and two 5 per cents allowed.

CHARCOAL IRON

1½-inch	1 off
1¾-inch	8 off
2 and 2¼-inch	13 off
2½ and 2¾-inch	16 off
3-inch	17 off
3¾ to 3½-inch	18 off
4-inch	20 off
4½-inch	21 off

Subject to 10 per cent discount on full carload lots. On less than 10,000 pounds, base discount reduced 2 points and no preferential allowed. On 10,000 pounds to carload, 5 per cent preferential allowed.

SEAMLESS COLD DRAWN

1-inch	63 off
1¼ and 1½-inch	55 off
1¾-inch	39 off
2 and 2¼-inch	34 off
2½ and 2¾-inch	42 off
3-inch	48 off
3¼ and 3½-inch	50 off
4-inch	53 off
4½, 5 and 6-inch	42 off

SEAMLESS HOT ROLLED

1¾-inch	39 off
2 and 2¼-inch	40 off
2½ and 2¾-inch	48 off
3-inch	54 off
3¼ and 3½-inch	56 off
4-inch	59 off
4½, 5 and 6-inch	48 off

Subject to 5 per cent supplementary discount for carload lots. On less than 10,000 pounds, base discount reduced 6 points. On 10,000 pounds to carload, base discount reduced 4 points and one 5 per cent allowed.

SEAMLESS STEEL MERCHANT BOILER TUBES

Extras:

Add 5 per cent for lengths over 24 feet and not over 26 feet.

Smaller tubes than 1-inch and lighter than standard gage to be sold at mechanical tubing list and discount.

Intermediate sizes and gages not listed above take price of next larger outside diameter and heavier gage.

SEAMLESS STEEL MECHANICAL TUBING

Base Discounts on New List July 1, 1925

Carbon 0.10 to 0.30 per cent.....50 to 55 off

Carbon 0.30 to 0.40 per cent.....45 to 50 off

Plus usual extras for forming and for long lengths over 18 feet and for commercially exact lengths.

SEAMLESS STEEL LOCOMOTIVE AND SUPERHEATER TUBES

Outside diameter	Gage	Net prices per foot f.o.b. Pittsburgh Price
2-inch	12-gage	14¼c
2-inch	11-gage	15c
2-inch	10-gage	16c
2¼-inch	12-gage	16c
2¼-inch	11-gage	17c
2¼-inch	10-gage	18c
3-inch	7-gage	33c
5⅜-inch	9-gage	50c
5½-inch	9-gage	52c

Plus usual extras for forming and for lengths over 24 feet.

Plate Extras

BASE

Rectangular plates, tank steel or conforming to manufacturers' Standard Specifications for structural steel, date Nov. 24, 1922, or equivalent, ¼-inch thick and over on thinnest edge (except for ¼-inch or 72 inches wide when ordered to weight in pounds per square foot—see width and gage extras), 100 inches wide and under, down to but not including 6 inches wide, 5 feet 0 inches long up to published limit in length but not over 80 feet 0 inch, are base. Extras per pound for width or diameter.

All Plates Rectangular or Otherwise

¼-inch thick and heavier, but not less than 11 pounds per square foot, if ordered to weight.

Over 100 to and including 110 inches	.05c
Over 110 to and including 115 inches	.10c
Over 115 to and including 120 inches	.15c
Over 120 to and including 125 inches	.25c
Over 125 to and including 128 inches	.50c

Plates less than ¼-inch or lighter than 11 pounds per square foot.

Over 72 to and including 84 inches	.10c
Over 84 to and including 96 inches	.20c
Over 96 to and including 100 inches	.30c

Over 100 inches add .35c to width extras for plates ¼-inch thick and heavier.

GAGE

Plates Not Exceeding 72 Inches Wide

Plates less than ¼-inch gage, to and including $\frac{7}{16}$-inch; or lighter than 10.2 pounds per square foot, to and including 7.65 pounds square foot..... .20c

Plates Over 72 Inches Wide

Plates less than ¼-inch gage, to and including $\frac{7}{16}$-inch; or lighter than 11 pounds per square foot, to but not including 7.65 pounds square foot.... .20c

Plates ordered 7.65 pounds square foot .30c

QUALITIES

Pressing steel	.10c
Flange steel (boiler grade)	.15c
Ordinary firebox steel	.20c
Stillbottom steel	.30c
Locomotive firebox steel	.50c
Marine steel	1.50c
Hull materials subject to U. S. Navy Dept. specifications for medium or soft steel	.10c
High tensile hull steel subject to U. S. navy department or equivalent specifications	1.00c
Boiler steel subject to U. S. navy department specifications, classes A-B	1.50c

Hull plates to hull specifications, required to stand cold flanging, take extra for flange steel.

Floor Plates

Checkered plates 1.75c

Checkered plates are not furnished to sketch and are rolled from "Stock Steel" only. No physical tests will be made on checkered plates.

INSPECTION

Mill inspection .....No extra

Charges for other inspection, such as Lloyd's or American bureau of shipping, will be made by inspection bureau direct to buyer.

CUTTING

LENGTH OR DIAMETER

All Plates, Rectangular or Otherwise

Five feet and over up to published limit of length, but not over 80 feet.....No extra

Under 5 feet to 3 feet inclusive	.10c
Under 3 feet to 2 feet inclusive	.25c
Under 2 feet to 1 foot inclusive	.50c
Under 1 foot	1.55c
Over 80 feet to 100 feet inclusive	.10c

Over 100 feet add .25c plus .05c for every additional 2 feet or fraction thereof.

Regular Sketches

With not more than four straight cuts. (Including straight taper plates)

Additional extra ..... .10c

Irregular Sketches

With not more than four straight cuts. (Sketches cannot be sheared with re-entrant angles)

Additional extra ..... .20c